CALIFORNIA
OIL WORLD

PUBLISHED TWICE A MONTH
FOR TIMELY, COMPLETE
CALIFORNIA OIL NEWS COVERAGE

• SECOND ISSUE
JANUARY, 1945
VOL. 38 • NO. 2
WHOLE NO. 1673

PETROLEUM PUBLISHERS, INC.
MEMBER AUDIT BUREAU OF CIRCULATIONS
W. C. MONROE—President and Editor •
117 WEST 9TH STREET
LOS ANGELES 15, CALIFORNIA
KINZIE MILLER—Vice President
V. W. HEINZERLING—Manager News Service

California Oil World is published twice a month at 117 West 9th St., Los Angeles 15, California. Entered as Second-Class Matter, April 29th, 1944, at the post office at Los Angeles, California, under the Act of March 3, 1879. Subscription price $1 per year in U. S. and possessions, $2 in foreign countries, including Canada. Member of the Audit Bureau of Circulations.

January 30th, 1945
Telephone Number TUcker 2571

Carrington Kung

Trouble ahead for producers who are trying to meet the expanded 1945 drilling program is seen by Deputy Petroleum Administrator Ralph K. Davies.

The Petroleum Administration for War is getting set to fight with all the weapons at its command expected efforts to seriously curtail its steel and materials allocations, Davies told CALIFORNIA OIL WORLD. PAW's program of drilling "simply must be supported" with the materials required, if the military is to be assured of a continued full supply of oil, the Californian said.

While the War Production Board as yet has made no move to cut the oil agency's materials allocations, PAW is bracing itself for an early bout over the urgency of its requirements. Without materials the oil industry will be unable to drive for the 27,000 new wells officials believe must be drilled in the current year if our armed forces are to receive the petroleum supplies they need.

"We've reached the point where existing capacity is utilized practically 100%," Davies said. "And without a margin to go on there is no alternative to our development program if the military demand is to be met in the future as in the past."

Seriousness of the petroleum supply situation has been reflected in numerous quarters since the first of the year.

The East Coast (where the picture is aggravated by a shortage of coal) is the principal sufferer and the residual fuel outlook in that area has been described officially as "far from comfortable".

Tightening of gasoline restrictions throughout the country is rapidly becoming a "probable", instead of a "possible". On this score, Davies—who stresses the point that PAW deals with supplies and not with actual rationing — points out that the production, refining and transportation branches of the industry are operating to the peak of capacity and that any further substantial increase in military petroleum demands must necessarily tap the civilian supply. Production wise and in manufacturing capacity, the industry is getting out every drop of oil it can, he emphasized, and all of this output is spoken for to keep the war machine rolling and the home front as well supplied as is possible when war needs have been cared for.

Davies spoke hopefully of the possibility the rich oil-bearing islands in the Dutch East Indies will fall into the hands of the Allies before the Pacific war is advanced much further. Borneo and Sumatra lie close to the Philippine Islands, where Gen. MacArthur is conducting his tremendous offensive, he noted (both islands lie to the southwest of the Philippines and the distance from the island of Palawan to North Borneo is less than 50 miles while smaller Philippine atolls in the Sulu Archipelago extend almost like stepping-stones to Japheld Borneo).

From two to three refineries still are in operation in the Dutch East Indies, Davies believes, and these could be quickly rehabilitated even if the Japanese demolished them before the arrival of American or British troops. If oil could be obtained from this source "we'd be getting it right where we need it", he added, — agreeing that this oil could be used in an invasion of China, to save the extremely long trans-Pacific haul that now is necessary to supply our Pacific forces. . . . Davies also commented on the fact that oil from the East Indies would relieve the pressure on United States production—"more particularly on California production".

Still another angle of the tight petroleum supply situation is said to be percolating in the War and Navy Departments,—with both the Army and Navy indicating their requirements for 100 octane gasoline may be boosted substantially in the near future. Although their discussions remain in the "unofficial" stage, it is reliably reported the oil industry will be called upon to do everything short of building new refineries,—a process requiring from 12 to 14 months and too slow-moving to help in the present emergency.

Best guess is that more cumene substitute will have to be manufactured and that more butylenes may

have to be "borrowed" from the synthetic rubber program, wherever this can be done by substituting alcohol.

Recent acquisition of Standard Oil Co. of California (through its subsidiary, Richmond Exploration Co.) of an additional concession in Venezuela boosts the company's Venezuelan holdings to 2,750,000 acres,—or 4300 square miles, slightly less than the area of the State of Connecticut.

The first concession — embracing 1,000,000 acres—was granted by the Venezuelan Government in 1943 and represented the largest concession to be approved since the U. S. and Venezuela worked out an arrangement increasing royalty payments but averting possible serious trouble with the Latin American country. Until a new law went into effect in that year, American oil companies with interests in Venezuela were fearful of a repetition of the Mexican expropriations, but U. S. State Department officials worked hard and efficiently to dissipate this threat.

The new acquisition—announced Jan. 15 by Standard's president, H. D. Collier—is largely in the delta of the Orinoco River, in the State of Monagas. Officials frankly admit exploration is "expected to be difficult" as the concessions are in a partially-inundated tropical area and shallow-draft boats will have to be used for geophysical work. Exploration activities will start as soon as proper equipment can be moved in.

Standard and its subsidiaries experienced a good year in the discovery line, during 1944. The Brookhaven, Cranfield and Mallalieu fields in Mississippi—discovered in 1943 by the California Co.—brought in dividends; oil was found in Princess Field, Alberta, Canada, where only gas had previously been produced and two new gas fields were discovered, — the Alpaugh field near Chino in Kings County and the Hanker in Solano County in Northern California. All this in addition to expanded production at Elk Hills and the discovery of a deeper producing well in the Buena Vista field.

Echoes from the East Coast oil shortage area:

During the recent Washington gasoline famine, the National Press Club found a new hero. After leaving his car stranded for three days on a Washington street, because of an empty gas-tank and no coupons, Charles ("Chuck") Miller, correspondent for the Akron Beacon-Journal and other papers of the Knight newspaper chain, bought a gallon of a widely-advertised home cleaning fluid and chugged home.

Miller reported that, although the engine knocked alarmingly, no permanent damage was done. Inquiry developed the cleaning fluid had an octane rating of 58.

. . . With the Eastern cold wave still going strong, householders in many sections of Washington found themselves without fuel oil. Included was CALIFORNIA OIL WORLD's correspondent. Final indignity suffered occurred when the delivery truck—after two days during which the furnace remained idle—delivered the order to the corresponding street-number in the next block.

Ticklish question of a crude oil price increase is being tackled as this is written by the new National Crude Oil Industry Advisory Committee—recommended by the Patman Committee and by the industry and working with the Office of Price Administration.

With the matter still in the discussion stage, little has come out of the daily meetings beyond the assurance a searching inquiry will be conducted into the industry's cost problems. This will be done by sending out questionnaires to individual operators and companies and possibly will deal with replacement costs as well as with what the OPA calls "historical costs."

At one point in the conference, it is understood, OPA presented a tentative price form—going into present earnings and comparing them with earnings during the so-called "base-period" of 1936-'39 — but whether this suggestion will be adopted remains to be seen. Producers naturally protest such a comparison, as this was a period of price-cuts, over-production in Illinois and other troublesome occurrences that kept prices down. For this reason, the industry favors a cost survey that would recognize the higher present-day costs of finding and wildcatting enough oil to replace what is now being used.

Heading the committee is Charles F. Roeser, of Roeser and Pendleton, Inc., Forth Worth. Carl P. Reistle, Humble Oil and Refining Co., is vice-chairman, and California is represented by A. C. Rubel, of Union Oil Co., C. P. Watson, of Seaboard Oil Co., and W. H. Morgan, of the R. R. Bush Oil Co.

The Washington meeting probably will be followed by one in St. Louis, or Chicago, according to OPA, where a "sampling method" will be determined.

* * *

Death of Senator Francis T. Maloney (D., Con.), chairman of the special Senate Oil Investigating Committee, on Jan. 16 raises the important question of who will take the lead in Congress in legislative matters affecting the oil industry. Ranking member of the committee is Senator George L. Radcliffe (D., Md.), whose name is not particularly well-known in industry circles.

Although Representative Clarence F. Lea—Santa Rosa Democrat and dean of the California House delegation — has not actively interested himself in oil matters during the past few months, this is a chance for Lea's special petroleum subcommittee of the House Interstate Commerce Committee to seize the initiative and regain the important place it held when Judge William P. Cole, Jr., was its chairman.

Maloney, who was well-liked and highly-respected in Congress, died suddenly of a heart attack. The 50-year-old Connecticut legislator was chairman of the special committee investigating the so-called "fake gasoline shortage" of 1941 and was actively interested in the Anglo-American petroleum treaty.

Diesel Power Drills C. C. M. O. Padre Canyon Well

O. J. Riley of Ventura is drilling C.C.M.O.'s Hobson A-15 in Padre Canyon with heavy duty Diesel power. Hobson A-13, recently completed by Diesel drive, is believed to be the first well in California drilled with heavy duty units.

Drilling equipment consists of an Ideal Type 75 Consolidated Rig. Two six-cylinder Superior PTD-6 8½ x 10½ Diesels operate the draw works and a 7¾ x 16 Gardner-Denver mud pump. The pump is connected with a V-belt.

A larger separate mud pump is a National C-350 7¾ x 18 and is operated with a V-belt drive by an eight-cylinder Superior PTD-8 8½ x 10½ Diesel.

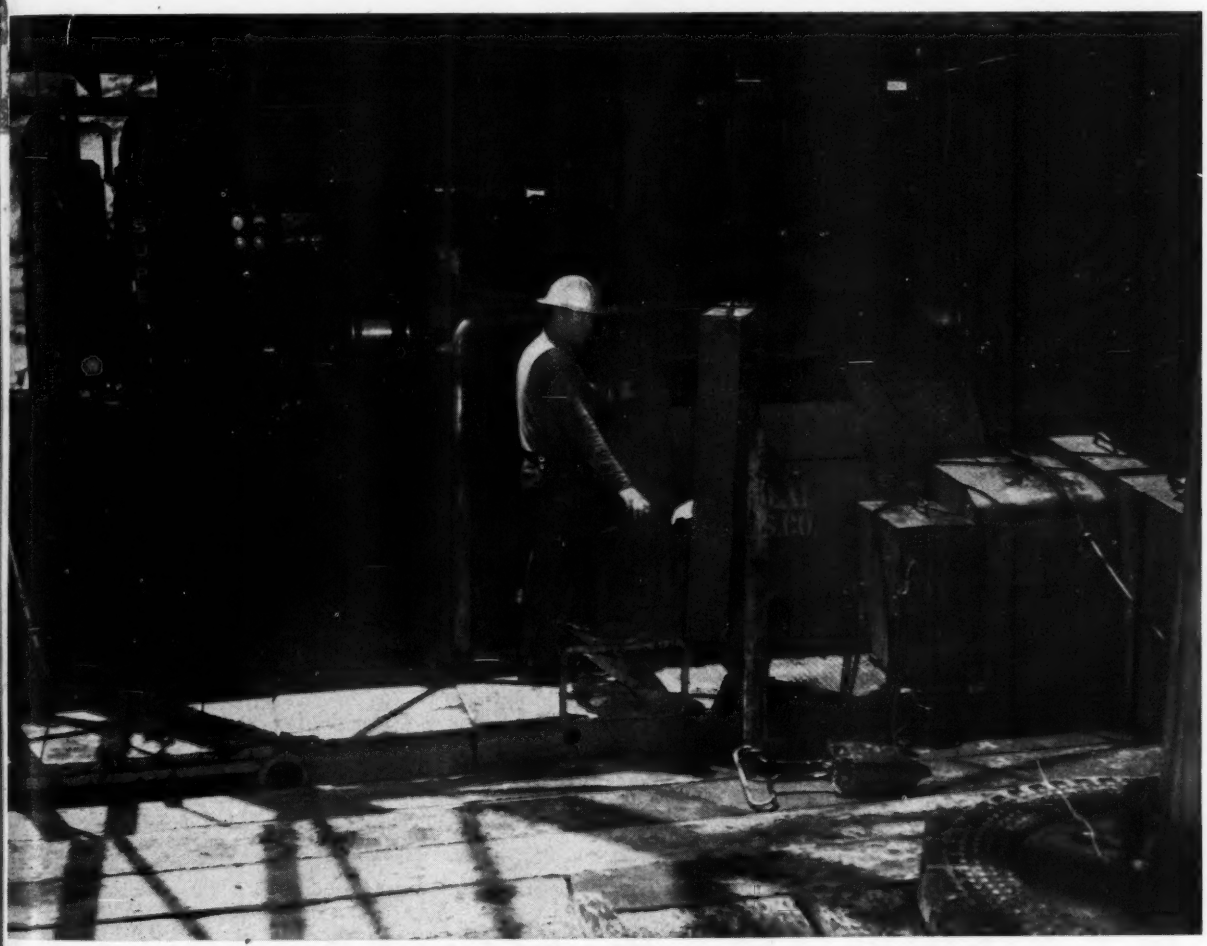
Diesel Horsepower Ratings

The 6-cyl. Diesels are rated at 260 BHP at 800 RPM with a radiator. The 8-cyl. unit is rated at 355 BHP at 800 RPM with a radiator. Low operating cost, ease of maintainance, lack of fire hazard and portability are cited as interesting features of this type of installation. Fuel cost at the present well runs about $12.50 a day. No engine maintenance mechanic has been needed, and the rig crew handle lubrication and general operation utility satisfactorily.

Portability was emphasized when the equipment was moved from A-13 to the Hobson A-15 site. The draw works breaks down into pieces which were found easy to transport over the steep Padre Canyon grades. The dimensions and weight of the Diesels offered no transportation difficulties. According to O. J. Riley, the draw works, engines and pumps were moved from the completed well and set up at the new site in 16 hours.

Hobson A-15 was spudded around the first of the year and will be drilled to an 8,000-ft. zone. An 11¾ surface string was set at 600 feet. A 10⅝ hole will be drilled with 4½ inch drill pipe all the way to bottom. Casing will be run to bottom, and gun-perforated.

At Hobson A-13 casing was run and landed through the producing



Type 75 Consolidated Rig with two PTD-6 Superior Diesels and Ideal draw works. The Diesels are staggered to permit compounding for driving rotary table and one mud pump.

HAS POWER... SPEED IN FACT, Everything YOU EXPECT OF A RIG!

Wilson

THE POWER RIG THAT SETS THE PACE

Operators are extra proud of their Wilson Rigs, these days, because they help solve a serious manpower problem. Wilson Rigs are extremely simple to set up, to operate, to keep in perfect condition, and easy to repair, when necessary. These advantages, plus the fact that Wilson Rigs give you everything expected of a rig—power, speed, safety, durability, and economy—should put Wilson first on your list for consideration! Investigate the new Wilson Super-Titan Model, with Vaca-Manual drum clutch controls, capable of drilling 15,000 feet and more!

Wilson
MANUFACTURING COMPANY, INC.

H & B SALES CO. - Pacific Coast Representative
2875 Cherry Ave. - Long Beach 6, Calif. - Phone 41659

zone. The production string was shot with a McCullough 40-shot 4-way gun. A total of 2960 shots were fired. Shooting time was 61 hours, 20 minutes, with an average of 48 shots per hour. All perforations were one-half inch.

Diesel Engines Flexible

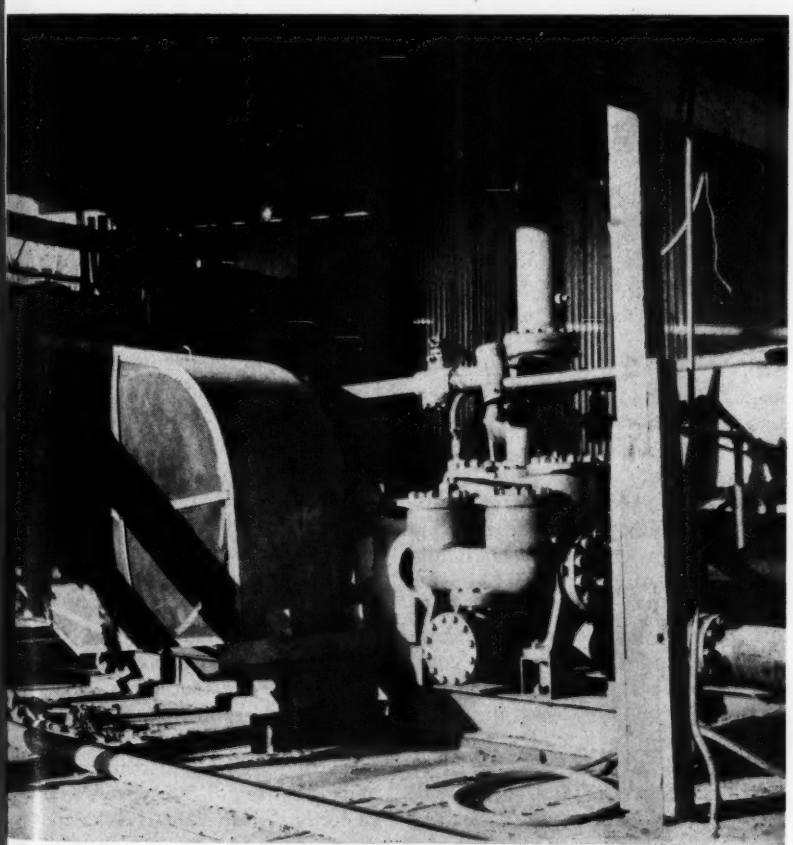
All the Diesel engines are fully enclosed with dust-proof and oil tight covers. Working parts are accessible because the covers can be removed from the large frame openings to permit easy inspection and adjustment. The parts normally requiring service are light enough in weight to permit easy handling by one man, and the conventional design makes the service of a skilled Diesel engineer unnecessary.

The horsepower ratings are reportedly conservative and permit a large overload capacity for temporary emergencies and for quickly starting out of the hole with a long drill pipe load.

Spray nozzles are located on a central axis in the top of the cylinder head and inject fuel through multiple holes in the tip, into an open combustion chamber formed between the shallow dished piston crown and the cylinder head. The sprays are discharged toward the periphery at a slight downward angle. Each nozzle has its own built in, edge type filter to supplement the main duplex fuel oil filter. Each spray valve is differentially spring loaded, and is not intended to require adjustment, since it is not opened by mechanical means but by hydraulic pressure only.

Fuel Pumps

Injection pumps are of the jerk-pump type, and are mounted directly above the engine cam shaft. The quantity of fuel injected is regulated by the rotation of the pump plungers with a helical groove so arranged as to vary the cut-off or effective stroke of the plunger. This system is explained as giving clean combustion and good fuel economy through a wide range of speeds and loads.



Arrangement of C-250 Ideal Mud Pump below and close to derrick floor at Hobson A-15. Rear Diesel engine frame is notched to provide V-belt clearance for pump drive.

Load balance between cylinders is obtained by the simple adjustment of calibrated racks on each pump which rotate the groove pump plungers. No packing is used on the spray valves or pump plungers. All fuel pumps draw their fuel from a common supply line under pressure maintained by a built-in fuel transfer pump of rotary type. The fuel economy compares well with much larger and slower speed engines. Consumption of less than .4 pound per brake horsepower hour at full load is common.

Lubricating System

The lubricating system is of the full pressure, wet-sump type, and is supplied with a main filter and by-pass filter to assure sustained purification. The pressure pump is mounted on the control end of the engine. The gear type pump takes oil from the sump in the engine base and forces it through the filters and shell-and-tube cooler, and through a header to the main bearings. The oil then passes through the drilled crankshaft to the crank pin bearings, then through the rifle-drilled connecting rods to the piston pins under pressure. Additional oil lines from the header supply the governor, overhead valve gear and other working parts.

Engine Speed Control

Engine speed is controlled by a vertical centrifugal type governor, enclosed in a dust-proof and oil-tight housing, and gear driven. It is connected by a suitable linkage to each individual fuel pump rack to regulate the fuel admitted by a variable cut-off of the effective fuel pump plunger stroke.

Structural Features

The engine bed plate is deep and well ribbed to insure rigidity. The forged crankshaft is fitted with counterweights to prevent vibration. The cylinder block and upper crank case is a single rigid machined casting. Cover plates fitted to front and rear permit access to all parts in the crank case and the removal of the camshaft regardless of space limitation, within the length of the engine.

The cylinder heads have uniform sections and large water passages. Each head supports its own rocker arm shaft and contains spray noz-

View northeast across Padre Canyon, Hobson A-15 is shown as well farthest up canyon side in center of picture.

zle, air starting check valve, air starting valve, and one exhaust and one inlet valve. Each piston is fitted with six rings. The steel wrist pins are hollow bored, hardened and ground to permit a free turning of the pin in both rod and piston, thus avoiding distortion of the piston.

Type 75 Consolidated Rig

The Consolidated rig is designed to accommodate two internal combustion engines having a maximum combined nominal input of 500 HP to the draw works and for drilling operations to 7,500 feet with 4½ inch drill pipe. The complete rig includes the draw works and transmission unit, two engine drive units, and a main sub frame which supports all of these units as a group and maintains proper alignment. Provision is made for compounding both engines so that their combined power may be used for hoisting operations, or for driving the rotary machine and slush pump at their required speeds while drilling.

Speeds, Clutches and Brakes

Six hoisting drum speeds are available. The three lower speeds are through a jaw clutch, while the three higher speeds are through a friction clutch. Three rotary table speeds are attainable with smooth engagements through a friction clutch. This permits the compounding of the engines with the proper rotary and pump speed requirements.

A gear-tooth spline drive clutch on the low speed drum drive transmits power directly to the spooling drum independent of the shaft and requires no sliding clutch keys in the shaft. Friction clutches for the three higher drum drives as well as for the pump drive and for compounding the engines furnishes flexibility. A master friction clutch on the draw works provides a single control over all hoisting and rotating operations. A sand reel can be mounted on the catshaft if desired. The catshaft is designed to receive a free running type reel provided with two brake rims.

Draw Works and Transmission Unit

The draw works has a selection of six hoisting speeds and three rotary drive speeds and consists of two units; the hoisting drum unit, and a complete oil bath heavy duty transmission unit with three forward speeds and gear reverse, including master clutch shaft and jack shaft. These two units have separate skid bases and are bolted together in alignment to form a compact arrangement. They can be easily disconnected for transporting. A single control over all of the draw works operations is provided by means of the master friction clutch which engages the engine drive. The clutch is of a double disc type with 30-inch diameter friction plates.

Drum Shaft

The drum shaft low speeds are obtained through a jaw clutch sprocket equipped with a gear tooth spline drive connection from the sprocket to the hoisting drum. This arrangement eliminates any sliding clutch keys in the shaft, thereby transmitting the torque directly from the sprocket to the hoisting drum.

The low speed drum drive is driven from the jack shaft by a 2-inch pitch, double strand chain. A friction clutch is used for engaging the higher drum speeds. The high speed drum shaft sprocket and rotary drive sprocket are mounted on a single hub keyed to the friction clutch spider which is mounted on roller bearings.

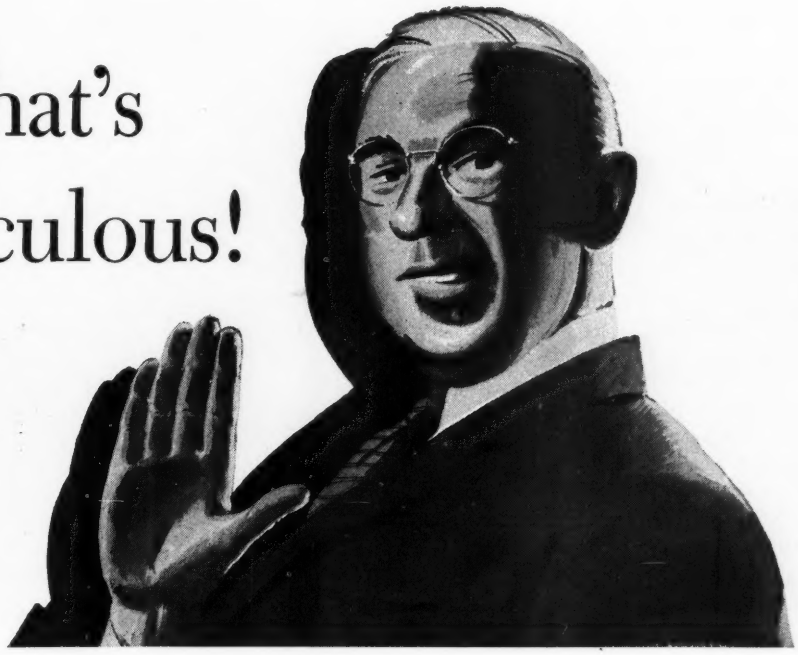
The drum shaft is mounted in hook-type bearing supports, which allows all line loads to be transferred from the shaft to the draw works frame rather than to the bearing box bolts. The drum shaft is extended on the driller's side to accommodate a 36-inch hydromatic brake. All brake rims are water-cooled.

Transmission

The transmission is incorporated in the unit construction of the draw works and employs a 2-inch pitch, double strand chain to furnish three forward speeds, and constant mesh helical gears for the reverse. Speed selections for the close-coupled drives from the master clutch shaft are made by jaw clutches. An inertia brake on the master clutch

CHANGE OUR METHODS FOR A SAFETY ENGINEER?

That's Ridiculous!



FORTUNATELY, such reactions to safety suggestions are now infrequent.

Safe practices, originally designed to save the lives and protect the bodies of workers, long ago proved their *financial* value... as a means of saving productive manhours and as a way to minimize Compensation Insurance costs.

To agents and brokers much credit goes for persuading their policyholders to give organized safety the chance it needed to prove its worth.

Without the authority which their close client relationships gave to safety recommendations, the acceptance of safe practices would have been a slower process.

We believe its contribution to the success of a program that has saved countless human lives marks another notable achievement for the American Agency System operating under free enterprise.

INDUSTRIAL INDEMNITY COMPANY, *Workmen's Compensation Insurance* · San Francisco, Los Angeles

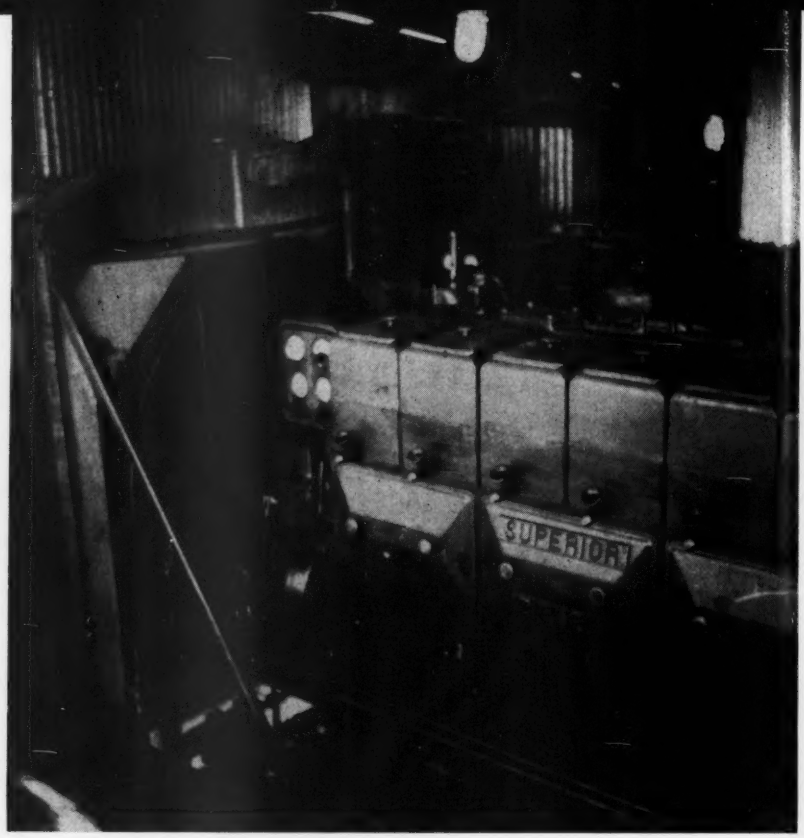
shaft outside the transmission housing facilitates the shifting of the transmission clutches and also stops the catheads.

Catshaft

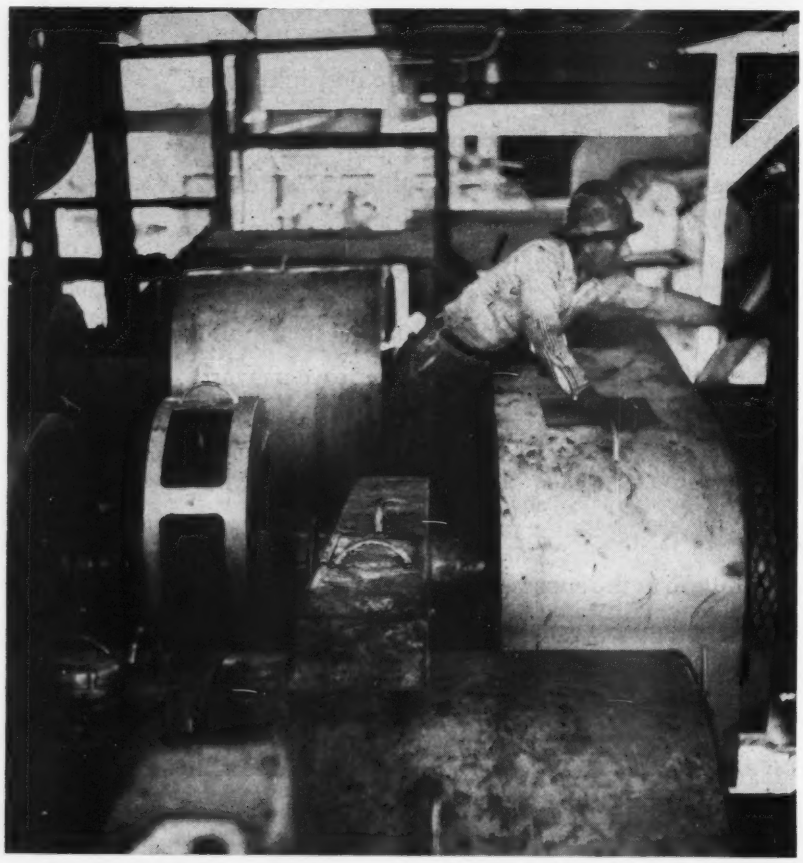
The catshaft is driven by a 2-inch pitch single chain from the jack shaft by a sprocket mounted on the same hub as the drum shaft low-speed drive sprocket. The shaft ends are tapered for easy removal of the catheads. An extended type cathead is mounted on the driller's end of the shaft and a Foster high speed cathead may be mounted on the other end if desired. A long type ball bearing rope roller is positioned to protect the driller from the spinning rope.

Rotary Table Drive

The rotary table is driven through a countershaft mounted on the base in front of the drum shaft. The drive from the drum shaft is to a free-running sprocket mounted on roller bearings. Rotary drive engagements at any speed are made possible by a friction type clutch. A special mud seal is provided to prevent mud from the rotary chain from entering the bearings of the free-running sprocket. The rotary drive countershaft has a stub extension which provides a means of connecting a separate shaft for driving the rotary unit when drilling a rathole.



View of PTD-6 Superior Diesels showing arrangement of radiators. Ample space is available around each engine for service and repairs.



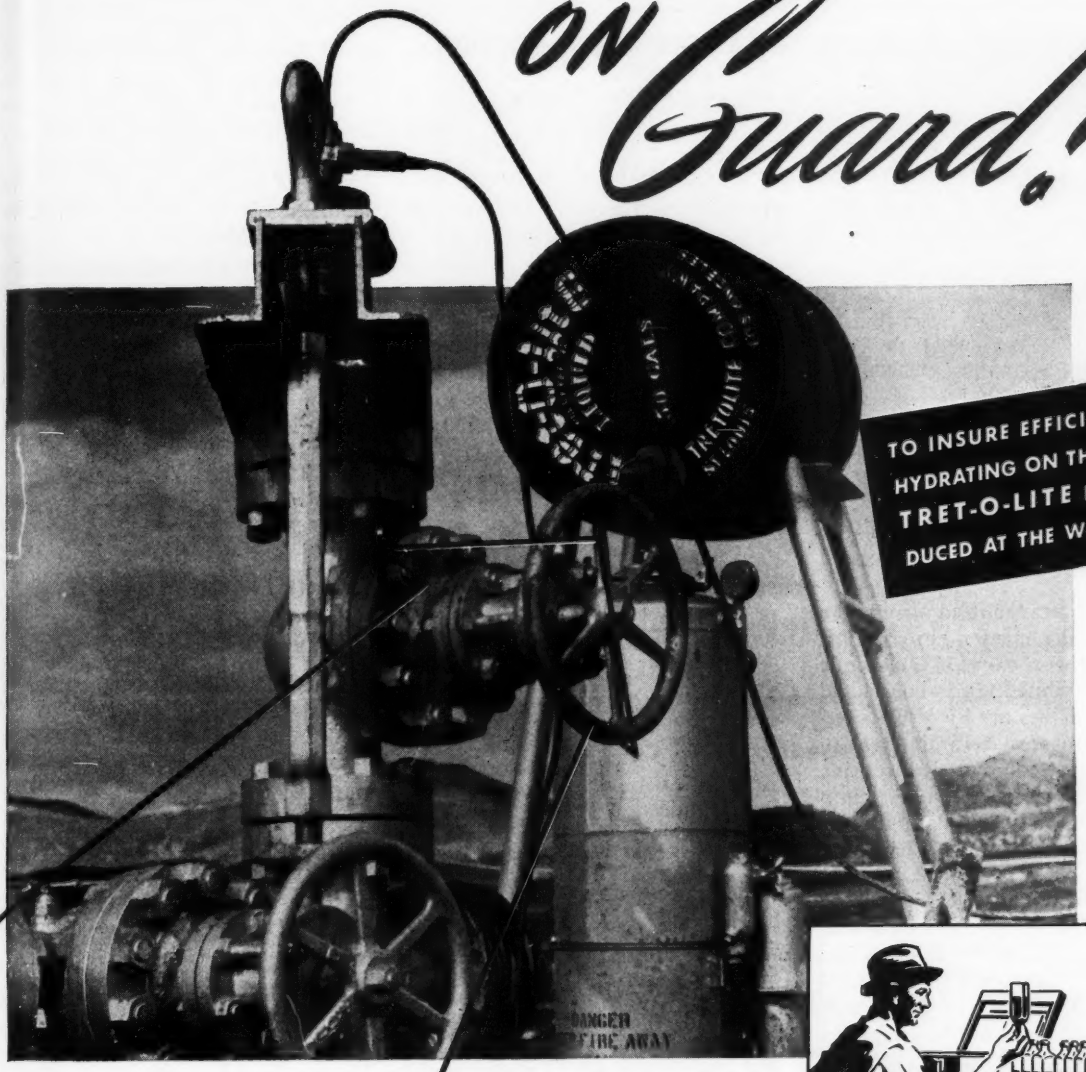
Closeup of arrangement for power transmission. Power to master clutch shaft is transmitted by 1½" triple roller chain. Compound and slush pump drives are by V-belts.

Controls

All of the draw works controls are conveniently located at the driller's station. The master clutch, inertia brake, and engine throttles are operated from the driller's handwheel. A dual handwheel throttle control enables the driller to control the speed of the two engines from the extended cathead position. The throttle control at the driller's position permits either a coordinated control over both engine speeds or a single control over either engine as desired.

A single hand lever provides the means for shifting the transmission clutches, while foot pedals operate the drum shaft high and low speed clutches as well as the rotary drive clutch. The foot pedals do not overhang the draw works frame, eliminating the necessity of removing

ON Guard!



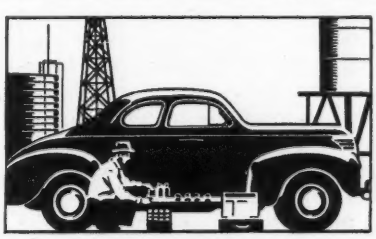
TO INSURE EFFICIENT DEHYDRATING ON THIS WELL, TRET-O-LITE IS INTRODUCED AT THE WELL HEAD.

ALL CRUDES do not respond similarly to a single treating compound or method. Because of this, there is a Tret-O-lite representative in your production area. He has studied the problems in the field and can advise you on the most efficient dehydrating system for the conditions on your lease. This is but one phase of Tret-O-lite Advisory Service . . . there are many, all designed to obtain more efficient and economical dehydration . . . to guard against waste and losses due to inferior procedures.

TRETOLITE COMPANY *Manufacturing Chemists*
WEBSTER GROVES, ST. LOUIS COUNTY, MO. LOS ANGELES, CALIFORNIA
Representatives in All Principal Fields

Tret-O-lite
REG. U. S. PAT. OFF.
DEHYDRATING DESALTING

Tret-O-lite representatives are "on call" to assist you on any emulsion problem. There is no charge for Tret-O-lite Advisory Service.



Tests carried out on the lease provide an accurate means of assuring a proper compound selection.

Complete Service for Every Field

them while transporting the unit. The drum brakes are applied by the conventional hand lever. The automatic cathead is operated by a foot pedal located at the driller's station.

Engine Drives

Various types and sizes of internal combustion engines are applicable as drives for the Type 75 rig. Each engine is mounted on a separate skid frame together with a shaft extension which is supported on self-aligning roller bearings. The engine frames are adjustable mounted crosswise on the main sub base. The rear engine frame is notched out to provide for V-belt clearance when the mud pump is placed below derrick floor level. This arrangement has been utilized at the Hobson A-15.

Power is transmitted from the engines to the master clutch shaft on the draw works by 1½ inch triple roller chain, while the compound and mud pump drives are by V-belts.

At the Hobson A-15 the two 6-cyl. Diesels are compounded to drive one Ideal Type C-250 mud pump (7¼ x 15). When this pump is running at 60 RPM, a 7¼" liner will deliver 600 GPM at 660 lbs./sq. in.; a 6¾" liner will deliver 520 GPM at 761 lbs./sq. in.; a 6¼" liner will deliver 440 GPM at 900 lbs./sq. in.; and a 5½" liner will deliver 320 GPM at 1,235 lbs./sq. in. These volumes and pressures are based on sea level engine ratings and allow an overall efficiency of 85% from engines to the pump hydraulic output, and 70% from the engines to the rotary table output.

Type C-350 Mud Pump

The C-350 mud pump, operated as a separate unit at the Hobson well by an 8-cyl. Diesel, has some interesting features. The pump is designed to meet the requirements of fast drilling and high pressures. The horsepower rating of the power end and the pressure rating of the fluid end make the pump capable of the same service as corresponding steam pumps. The pump is adaptable to engine or motor drives from either side, direct-connected or with V-belts.

The fluid cylinder is a one-piece steel casting. Large direct-flow discharge passages and large area valves minimize high fluid velocities and turbulent flow. The fluid valves are of a combination steel and rubber type.

The fluid pistons are made of a special rubber moulded on a solid metal core. The piston rods are connected to extensions which are screwed into the crossheads avoiding excessively long piston rods.

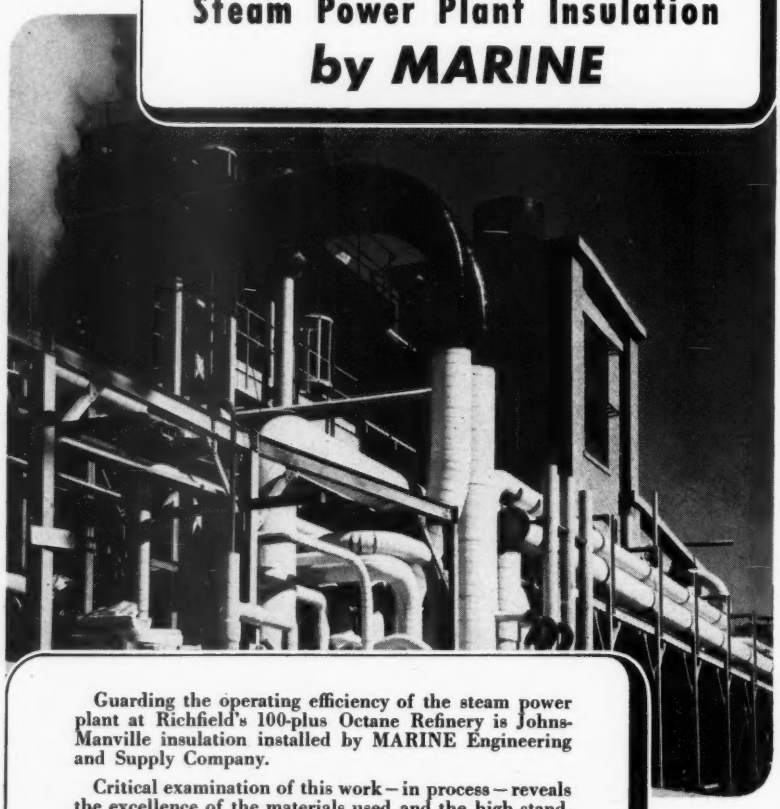
Standard Adds to Venezuela Concessions

A second group of oil concessions, covering approximately 1,000,000 acres, has been issued by the government of Venezuela to the Richmond Exploration Company, it was announced on Jan. 15th by H. D. Collier, president of Standard of California. Richmond Exploration Company is a subsidiary of Standard.

Most of the concession area is in the delta of the Orinoco River, in the State of Monagas.

Recently, Richmond obtained other concessions covering 1,750,000 acres on the west side of Lake Maracaibo. All the concessions, which cover exploration, exploitation and drilling, are under the Venezuelan law of 1943. Altogether they total

RICHFIELD
Steam Power Plant Insulation
by MARINE



Guarding the operating efficiency of the steam power plant at Richfield's 100-plus Octane Refinery is Johns-Manville insulation installed by MARINE Engineering and Supply Company.

Critical examination of this work—in process—reveals the excellence of the materials used and the high standards of skill and workmanship maintained throughout the installation. MARINE'S experience—gained from hundreds of large insulation installation jobs is available to all industry in the Pacific Southwest.

EVERYTHING IN INSULATION

Marine
ENGINEERING & SUPPLY CO.
941 East Second St. • Los Angeles • Michigan 8071

4300 square miles, slightly less than the area of the State of Connecticut.

Exploration in the Monagas region is expected to be difficult. The concessions are in a tropical area, partially inundated. Geophysical work will be done by means of shallow draft boats, similar to military landing barges. These exploration activities are expected to start as soon as the proper equipment can be moved in.

Commenting on the concessions, Collier said:

"Standard of California's activities in Venezuela reflect the generally increased interest in foreign sources of oil. Exploration has been stepped up because of the necessity of finding sources of petroleum to replace the vast quantities of oil used to fight the war to date."

Tide Water Associated Starts Mammoth New "Cat Cracker"

The world's largest single fluid catalytic cracking unit started operation at the Avon Refinery of Tide Water Associated Oil Company on December 29, 1944, according to L. F. Bayer, vice president in charge of manufacturing. This massive unit has a charging capacity of over 750,000 gallons of gas oil per day.

The importance to the war effort of this catalytic cracking plant and the other units included in the entire project is attested by the interest in its early completion manifested by the Army, Navy and Petroleum Administration for War since it produces raw materials and other products used in the manufacture of 100 octane fuel.

Associated's already high octane gasoline production was substantially increased when the simple turning of a valve started the oil into the new giant unit which towers over 200 feet in the air. The main construction work of this plant for contacting catalyst and oil at high temperatures was performed by C. F. Braun & Company of Alhambra, California, who also designed the unit with the assistance and cooperation of the engineers of Universal Oil Products Company of Chicago, Illinois, and of Tide Water Associated. The Universal Oil Products Company is licensor of this process.

USERS SAY—

You Hit the Jackpot!

when we developed the

E EA-SY C

INCLINOMETER

It's the most simple, most easy to operate and speediest instrument for surveying the inclination of a bore hole.

- Operates Automatically.
- No Timing Device Needed.
- Self-Checking.
- Multiple Recording in one Round Trip.
- Records Read Instantly.
- Lowest Operating Costs.

SAMPLE RECORD—Size of dot depends on length of time instrument remains at rest. Records can be made at different depths, size of dot identifying depth.

Send for full information.

SPERRY-SUN WELL SURVEYING CO.
1608 Walnut Street
PHILADELPHIA 3, PA.

Houston, Texas, Corpus Christi, Texas, Marshall, Texas, Lafayette, La., Long Beach, Calif., Bakersfield, Calif., Oklahoma City, Okla., Odessa, Texas.

California Oil World's Monthly Summary

DEVELOPMENT—PRODUCTION—SUPPLY & DEMAND
PACIFIC COAST TERRITORY

TABLE I—CALIFORNIA DEVELOPMENT—PRODUCTION

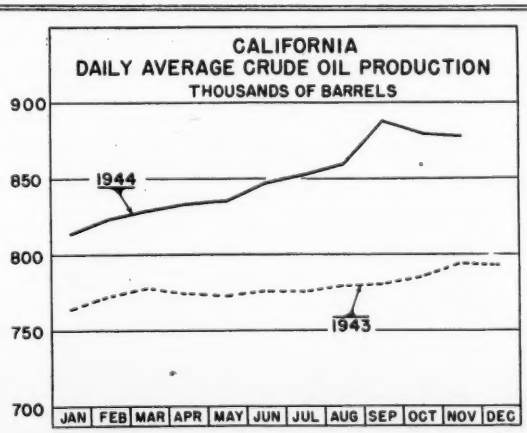
	NOVEMBER, 1944 DEVELOPMENT				PRODUCTION	
	Active Drilling Wells	Oil Wells Completed	Initial Production B/D	Oil Wells Completed First 11 Months	Daily Average November 1944	Daily Average November 1943
SAN JOAQUIN VALLEY						
Antelope Hills	.....	.....	.....	8	2,210	2,082
Arvin	.....	.....	.....	.....	32	45
Bellevue	.....	1	157	3	810	.....
Belridge—North	3	.....	.....	3	6,877	5,518
Belridge—South	4	14	564	187	11,945	8,309
Buena Vista Hills	12	6	4,941	55	27,166	13,888
Burrel	.....	.....	.....	1	16	139
Canal	.....	.....	.....	.....	3,532	3,540
Canfield Ranch	1	.....	.....	.....	41	32
Coalinga—East	3	1	64	90	22,831	20,677
Coalinga—Nose	.....	.....	.....	4	62,009	61,428
Coalinga—West	3	3	397	53	7,996	6,248
Coles Levee	3	3	1,932	8	17,011	15,947
Dyer Creek	.....	.....	.....	.....	.....	16
Edison	5	2	251	24	3,154	2,455
Elk Hills	25	26	9,556	83	34,774	14,716
Fruitvale	2	1	117	19	8,655	7,258
Gosford	1	.....	.....	2	176	.....
Greeley	3	2	860	7	14,340	13,738
Helm	4	.....	.....	15	2,226	609
Jacalitos	3	1	773	10	1,155	278
Kern Front	1	2	163	78	13,902	12,358
Kern River	4	1	182	33	9,782	8,875
Kettleman North Dome	8	2	1,302	11	41,383	41,505
Lanare	.....	.....	.....	1	168	55
Lost Hills	1	.....	.....	3	3,482	3,600
McClung	.....	.....	.....	.....	118	280
McKittrick	3	3	92	33	5,479	4,727
Midway-Sunset	11	5	102	122	40,852	40,897
Mountain View	2	1	55	4	3,104	3,608
Mount Poso	8	3	139	21	20,882	24,342
Paloma	4	1	601	14	6,647	1,221
Pleasant Valley	3	.....	.....	10	3,562	865
Raisin City—East	.....	.....	.....	.....	443	734
Raisin City—West	1	1	297	13	3,009	589
Rio Bravo	.....	.....	.....	1	16,265	14,978
Riverdale	3	1	138	18	5,177	2,821
Round Mountain	1	.....	.....	15	10,157	11,612
Shafter	.....	.....	.....	.....	2	2
Strand—East	1	.....	.....	2	635	415
Strand—West	.....	1	310	2	1,571	1,722
Tejon	2	2	134	4	194	50
Ten Section	.....	.....	.....	.....	11,739	16,035
Union Avenue	.....	.....	.....	.....	74	127
Wasco	.....	.....	.....	.....	2,003	2,333
Wheeler Ridge	.....	.....	.....	.....	242	257
Miscellaneous	3	1	29	24	780	.....
TOTAL SAN JOAQUIN VALLEY	128	84	23,156	981	428,608	370,931
COASTAL AREA						
Aliso Canyon	3	1	392	7	3,360	2,332
Capitan	.....	.....	.....	.....	2,615	3,752
Del Valle	2	.....	.....	3	1,735	1,115
Elwood	.....	.....	.....	3	5,731	6,611
Gato Ridge	3	.....	.....	4	4,784	4,570
Newhall-Potrero	2	.....	.....	3	4,569	5,594
Oak Canyon	2	.....	.....	2	1,192	787
Padre Canyon	2	.....	.....	3	1,549	957
Rincon	1	1	238	14	4,777	3,142
San Martinez	2	.....	.....	6	2,617	1,382
San Miguelito	2	.....	.....	4	6,031	4,555
Santa Barbara	.....	.....	.....	.....	82	102
Santa Maria	2	3	510	19	14,677	10,871
Santa Maria Valley	8	8	1,994	81	33,435	23,374
Summerland	.....	.....	.....	.....	5	23
Ventura Avenue	9	5	2,864	33	47,210	44,553
Ventura-Newhall	9	2	284	29	6,345	4,635
Watsonville	.....	.....	.....	.....	25	25
TOTAL COASTAL AREA	47	20	6,282	211	140,739	118,380

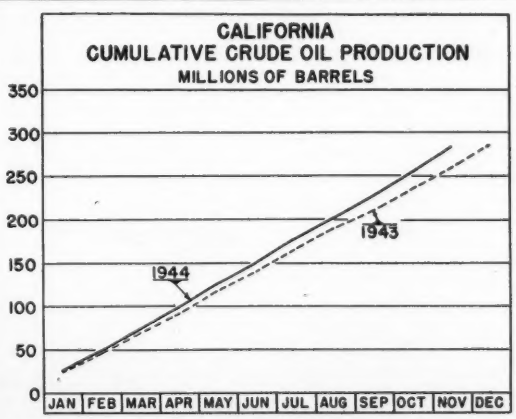
Notes and References: Table I from A.P.I.; Table II from U. S. Bureau of Mines.
Pacific Coast Territory includes Arizona, California, Nevada, Oregon, and Washington.

MONTHLY SUMMARY—Continued	NOVEMBER, 1944 DEVELOPMENT				PRODUCTION	
	Active Drilling Wells	Oil Wells Completed	Initial Production B/D	Oil Wells Completed First 11 Months	Daily Average November 1944	Daily Average November 1943
LOS ANGELES BASIN						
Brea—Olinda	.....	.....	.....	6	12,129	11,552
Buena Park	1	.....	.....	1	145	98
Coyote—East	.....	2	77	11	5,199	5,653
Coyote—West	4	2	1,242	17	12,449	11,915
Dominguez	2	.....	.....	9	20,186	23,359
El Segundo	.....	.....	.....	2	851	997
Huntington Beach	6	3	975	68	47,605	40,305
Inglewood	1	1	20	6	16,679	19,567
Lawndale	.....	.....	.....	.....	29	24
Long Beach	2	.....	.....	5	28,896	30,864
Los Angeles-Salt Lake	.....	.....	.....	.....	451	399
Montebello	2	.....	.....	8	10,382	10,885
Newport	.....	.....	.....	.....	.....	14
Playa Del Rey	.....	.....	.....	.....	2,548	2,381
Potrero	.....	.....	.....	1	1,049	917
Richfield	3	.....	.....	6	7,088	7,073
Rosecrans	1	1	142	5	5,953	5,642
Santa Fe Springs	.....	.....	.....	.....	18,642	19,558
Seal Beach	7	.....	.....	5	8,429	7,438
Torrance	6	1	19	25	8,052	8,278
Turnbull Canyon	.....	.....	.....	.....	213	264
Whittier	2	.....	.....	3	1,036	1,051
Wilmington	11	11	1,888	135	99,975	95,729
Yorba Linda	.....	.....	.....	3	730	685
TOTAL LOS ANGELES BASIN	48	21	4,363	316	308,716	304,648
Exploratory Drilling Outpost Wells	23	.....	.....	.....	.....	.....
Wildcats	25	.....	.....	.....	.....	.....
TOTAL CALIFORNIA	271	125	33,801	1,508	878,063	793,959

TABLE II—SUPPLY AND DEMAND FOR PETROLEUM PRODUCTS
PACIFIC COAST TERRITORY
DATA FOR NOVEMBER OF EACH YEAR
1938—1944

	November 1938	November 1939	November 1940	November 1941	November 1942	November 1943	November 1944
RAW MATERIAL—B/D							
1. Crude Oil Produced—California	662,800	612,733	607,700	650,552	727,598	793,959	878,063
2. Crude Oil from outside 5 Western States	.....	1,534	1,533	2,616	3,902	5,041	4,870
3. Natural Gasoline Produced	44,000	39,000	39,000	38,000	36,000	38,000	41,000
SUPPLY OF FINISHED PRODUCTS							
ALL SOURCES—B/D							
4. Natural Gasoline and L. P. G.	3,433	(467)	7,367	9,867	7,800	11,634	14,700
5. Gasoline and Naphtha Distillates	221,000	232,333	222,167	250,367	258,233	260,367	337,867
6. Kerosene and Kerosene Distillates	15,033	8,300	12,133	6,733	4,933	8,967	9,267
7. Lubricating Oils, etc.	10,367	14,433	14,733	8,967	13,734	14,667	14,733
8. Gas Oil and Diesel Oil	73,134	94,566	72,933	64,100	67,533	61,267	67,533
9. Fuel Oil Residuum	260,067	225,767	251,800	284,333	397,700	438,100	473,133
10. Asphalt and Road Oils	11,133	12,800	7,700	22,567	32,300	25,133	22,067
11. Coke and Other Finished Products	1,600	5,367	1,700	3,833	767	1,433	3,267
12. Miscellaneous and Losses	115,967	60,534	63,000	50,233	(2,835)	36,866	19,032
13. TOTAL SUPPLY	**711,734**	**653,633**	**653,533**	**701,900**	**780,165**	**858,434**	**961,599**
14. TOTAL DEMAND	**646,768**	**701,201**	**725,667**	**689,833**	**821,499**	**961,567**	**991,899**
15. DIFFERENCE	64,966	(43,568)	(72,134)	11,167	(41,334)	(103,133)	(30,300)
16. Stocks on hand End of each month (Total Bbls.)	163,289,000	157,828,000	151,419,000	141,872,000	129,257,000	107,699,000	92,680,000





Modern Cementing Practice

Part 2---Preparation of the Well for Cementing

An important factor in cementing is the preparation of the hole for placement of the slurry. Many a cement failure has been caused by adverse downhole conditions and this is true for nearly every type of job—from the original cementing of the casing in a drilling well to cement repair work in an old producer. In some cases the contents of the hole may affect the cement as it is being placed; in others it may interfere with the running and operation of the tool being used to place the slurry. Sometimes when a string of casing is being cemented the hole diameter itself may not permit the performance of an effective cement job. The slurry may be ideal for a particular job and the method and equipment used may be the best possible; but if the hole is not in proper condition there is still the chance of failure.

Before running casing the general down-hole conditions — such as character of casing seat, diameter of hole and approximate thickness of mud cake—are usually known, or assumed to be known. If any one is not satisfactory, means should be taken to put the hole in better condition or, in the case of an unfavorable casing seat, to overcome its adverse influence. The caliper log has disclosed that holes are not always as near to gauge as assumed and when the cement is to reach a predetermined height behind the casing the diameter should be checked. When any other adverse conditions are suspected it will pay to find out and correct the unfavorable ones discovered. In repair work even the casing through which equipment must be run will frequently cause trouble. A cement job is an important operation and is best when done effectively the first time. Since proper preparation of the hole is so often a factor in the success of the job when favorable downhole conditions do not obtain it should certainly be given serious consideration.

Preparation for Casing Jobs

The preparation of the hole for cementing a string of casing starts with the selection of the point where the pipe is to be set. The character of the formation naturally influences the selection but the most desirable casing seat will not always be present. The landing of the string in an unsuitable formation may, however, cause failure of the cementing job unless means are taken to overcome the conditions. With the electrical log providing a guide in developing fields the most desirable casing point under the circumstances is usually determined with little difficulty. Physical cores provide additional data and some operators core for every casing point, not only in exploratory wells but also in all wells in fields where the stratigraphy may vary. Coring alone can give certain definite information in a particular well; and from the data disclosed by coring, conditions at and above the point where the shoe is to be located can be determined. Such conditions frequently have a considerable influence on the behavior of the cement as it passes up behind the casing. A very porous formation, for example, may allow considerable infiltration of water from the slurry into the formation.

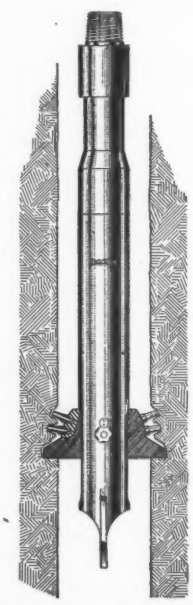


Figure 5—Core tubes attached to expanding blades are forced into the formation and thus obtain samples. The samples are of ample size for physical and laboratory tests, four complete samples being taken at each run.

Completion methods are of various kinds. A water string may be cemented above the productive zone, a combination string may be run and cemented above a perforated section or the casing may be run and cemented through the oil zone or zones and later gun perforated. When electrical logging is employed to determine the cementing point definite samples of the formation may be desired. To secure samples in such cases or when cores have been passed up or lost, a tool such as the Wall Sampler can be used. This tool, run on the drill pipe, has four hollow core tubes mounted on blades similar to the blades of a wall scraper which are brought into contact with the formation by hydraulic action obtained by pumps at the surface, the hydraulic action causing the blade to expand outward. When the blades contact the wall of the hole the tubes are forced into the formation by applying weight on the tool until the blades are fully expanded as shown in Fig. 5. The wall sampler is then pulled up (the blades retracting at the start of this operation) and the cores recovered from the tubes when the tool reaches the surface.

Effect of Hole Size

The diameter of the hole which forms the outer surface of the annulus through which cement slurry passes when being displaced behind casing naturally determines the thickness of cement encasement around the pipe. The area of this annulus will frequently have an influence on the success and effectiveness of the cement job. The ideal result of a cementing job is, of course, a uniform sheath of cement around the casing for the entire distance the slurry extends up behind the pipe. "Cement requires mass to obtain its most useful strength and the centering of the casing in a well by some means that does not induce channeling, or create voids, provides nearly uniform mass. The

ideal combination appears to be threaded and coupled casing run in well bores approximating 120 to 140 per cent of the outside diameter of the casing, without regard for coupling size." (5)

A requirement placed by others on hole size is that "when circulating mud fluid through the casing and when cementing, the velocity of the ascending column of mud fluid or cement outside the casing should be greater than the descending column in the casing." (6) This limits the maximum size hole that should be used for a given size of casing to $D^2 = 2d^2$ where "D" is the diameter of the hole and "d" is the inside diameter of the pipe. The reasons given for this rule are that "If the diameter of the hole is too much greater than that of the casing, portions of the cement column may become sluggish and begin setting before all the cement is displaced from the casing. When sufficient velocity is maintained, the initial set of the cement is delayed until it is all displaced, and without seriously affecting its strength."

While it is extremely desirable to have all the slurry displaced as rapidly as possible — especially in deep, high-temperature wells—there is no minimum limit of hole diameter set by this rule and too small an annulus may be more detrimental than too large a one. The rule is more applicable for casing of 8⅝ in. and larger but assuming the casing is 7-inch O.D.—32-lb. pipe, the maximum hole size computed by this formula would be 8.62 inches (approximately 8⅝ inches). If the limits of from 120 to 140 per cent are used, the hole size could range between 8.4 inches and 9.8 inches (approximately 8⅜ inches and 9¾ inches). The maximum size computed by the formula thus lies within the other limits but is closer to the minimum. An adequate encasement of the casing with cement, however, is necessary. Because of this and because the danger of channeling is increased by less clearance between the pipe and the wall of the hole, it is better to use the limits of 120 to 140 per cent of the outside diameter of the casing in determining the size of hole. Moreover, bits do not always hold their gauge during an entire run. There is, of course, the possibility of the hole being greater than the gauge of the bit as has frequently been disclosed by caliper surveys but the risk of getting tight spots in the hole by using a smaller bit should not be taken unless it is known that the formations are going to cause the drilled bore to be greater than the gauge of the bit. When an enlarged or irregular hole is suspected, a caliper log should be run if the cement is to reach a predetermined height above the cementing point.

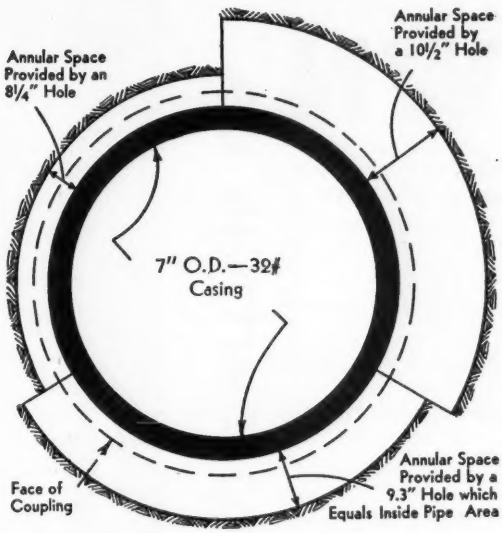

Annular Space Provided by a 10½" Hole
Annular Space Provided by an 8¼" Hole
7" O.D.—32# Casing
Face of Coupling
Annular Space Provided by a 9.3" Hole which Equals Inside Pipe Area

Fig. 6—The theoretical thickness of cement around 7-in O. D., 32-lb. casing is here shown for the various sizes of holes indicated. Wall-scraped enlargements of the hole at and above the shoe may be up to 130 per cent of the diameter of the drilled hole. A 9-in. hole, for example, might be enlarged to nearly 12 in. in diameter.

In planning the size of the hole to drill, therefore, due consideration must be taken of the fact that holes are not always drilled to full gauge; that getting the cement as completely around the pipe as possible is a big factor; that tight places may occur with small holes; that channeling may take place; and that considerable trouble may be caused by dead spots where the casing contacts the wall, frequently due to an inclination of the bore.

Enlargement of Hole

In slim hole drilling the annulus will seldom be large enough to insure a satisfactory cement job at and just above the shoe although theoretically it may be large enough for the very small sizes of casing. To provide adequate anchorage and to assure a shut-off, the hole at and for any desired distance above the shoe can be enlarged or bottlenecked** by wall-scraping the hole to a desired diameter.

While particularly adaptable to slim hole completion, this wall-scraping procedure is used in many wells drilled with greater size clearance because a thicker encasement of cement and/or better bond will make sure the cement job will be more effective. If a hole is enlarged for a short distance to a diameter greater than the maximum determined for the casing to be run there will be little, if any, effect on the movement of the slurry during the entire passage up behind the pipe. That is, if a distance of ten to twenty feet above the shoe is enlarged, the effect on the movement of the cement passing up several hundred or a thousand feet around the casing will be negligible. Unknown irregularities or cavities are often much greater than the wall-scraped portion of the hole; yet the enlarged hole at a strategic point will often be the means of making the cement job successful and effective.

It is recommended by some engineers that "The underreamed portion should not be greater than 130 per cent of the well bore" (5). In Fig. 6 a string of 7-inch casing is

DOWN

GO DRILLING COSTS WITH H. C. SMITH ROCK BITS

(This bit is generally used when making hole for surface pipe since it drills and reams hole in one operation.)

FROM the grass-roots down H. C. Smith Rock bits mean *lower drilling costs.* Here's why! Smith Bits dig straight hole with minimum weight. The triple-bearing assembly of the cross-cutter and gauge cutter permits high speed with heavy loads when necessary and still keeps the hole full-gauge. Smith Bits utilize maximum cutting surfaces of the tungsten-carbide, hard-faced and hardened cutters to keep digging longer and cut the number of round-trips.

Experienced drillers can tell you, "Smith Bits cut drilling costs and hold 'em down."

●

See Composite Catalog or Write for Bulletin.

H. C. SMITH 4-POINT ROCK BIT

H C Smith Oil Tool Co.

GENERAL OFFICES AND PLANT - P. O. BOX 431, COMPTON, CALIF.

shown centered in several sizes of hole. If the hole was enlarged to the 10½-inch diameter it would still be within the 130 per cent of the 8¼-inch hole in which the casing might be run. Unless the well was being drilled by slim hole drilling, the diameter of the hole would probably be nearer to the 9.3-inch size (approximately 9¼ inches) which provides an annulus equal to the inside area of the casing. In such a case the enlarged portion could be greater than the 10½ inches shown.

The enlargement at and above the shoe to provide a thick encasement of cement completely around the pipe at that point is especially advantageous for water strings where the enlarged plug gives added assurance that adequate and permanent protection is secured for the productive zone below. Moreover, such a block of cement provides an anchor to any string of casing and reduces the chance of damage when going out of the pipe. The additional advantage of an enlargement when the shoe contacts the wall is indicated in Fig. 7. Such a contact may be caused by a slight inclination of the hole at bottom and in the case illustrated by Fig. 7 the inclination of the hole is only one-half of one degree off vertical. The deviation caused by this small inclination is approximately two inches in 20 feet and since the clearance between the 7-inch casing and the 8½-inch hole is only three-quarters of an inch when both the pipe and hole are vertical it is evident that any slight inclination will cause the pipe to contact the wall of the hole at the shoe. Even if the pipe does not touch the wall of the hole there will be very little cement around the shoe joint unless the hole is enlarged. Moreover, the hazard of channeling must be considered when contact or near-contact occurs.

The procedure generally followed in enlarging the hole around the shoe, or "bottlenecking", is shown in Fig. 8. The enlargement is usually made with a wall scraper to within a few feet of the bottom of the hole and the shoe allowed to enter the unscraped portion of the hole below the enlargement. This

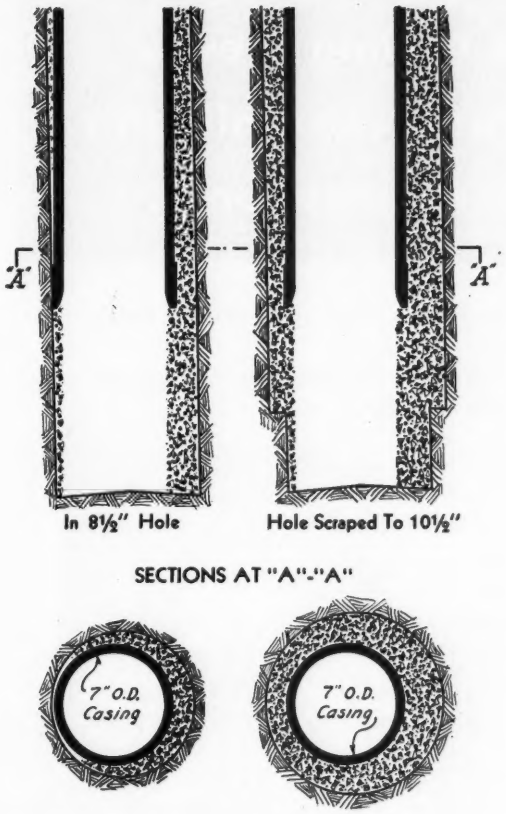


Fig. 7—The casing, suspended vertically in the well, touches the side of the hole which has deviated less than one degree from vertical. The condition obtaining if the hole is not enlarged is shown to the left. This has been overcome by wall scraping as shown in the drawings to the right.

provides complete encasement of the pipe at the top of and above the shoe and insures adequate cement along any side of the casing which might otherwise rest against or lie too close to the wall of the hole. When desired, however, the enlargement can be carried to the bottom with a bottom hole scraper as shown in Fig. 9.

The distance above the shoe to which the hole is wall-scraped will vary with conditions. It is ordinarily from 15 to 100 feet but there have been cases where it has been several hundred feet. If the cement is to be carried high behind the casing, the hole is sometimes wall-scraped not only at the shoe but also for ten or fifteen feet at a point just below the estimated top of the cement. The wall scraping naturally removes all the old mud from the wall of the hole and leaves virgin formation which will provide a better bond for the cement if the proper kind of mud fluid is employed for circulation during the scraping operations.

When cementing combination strings or when cementing off intermediate water strata with one string of pipe, the hole at the point or points where the cement is to be placed can often be scraped with considerable advantage. In some cases the removal of a thick mud cake may alone be necessary. In others, particularly in combination jobs where the casing string is cemented through perforations above a perforated section of pipe, complete encasement and formation of an anchor at the C.P. is assured by enlarging the hole at and above the position of the cementing collar as shown in Fig. 10. Any possible contact of the casing with the wall of the hole is, of course, eliminated by the enlargement and chances of channeling are reduced to a minimum.

The Drilling Crew— Patterson-Ballagh's Best Salesmen...

"Maybe you think this picture is funny—but I don't!

"Have you ever worked on a drilling rig in real *winter weather?*

"If you have, you know what it means to try to handle ice-coated drill pipe on a slippery floor caused by frozen mud and water. Remember the fishing jobs caused by slips, failure to grab the drill pipe?"

Gone, but not forgotten are these troubles when you install a PATTERSON-BALLAGH Pipe Wiper. Up comes the drill pipe, clean and dry. There's no wash water to freeze on the pipe or to drip on the floor or to freeze the men's gloves and shoes. Many drilling hazards are eliminated by use of this effective device. It's a winter necessity.

See Composite Catalog

PATTERSON-BALLAGH

Los Angeles 1 • Houston 10

New York City 6

PATTERSON-BALLAGH PIPE WIPERS

Now Made of PBX Synthetic Rubber . . . Oil and Weather Resistant.

Effect of Mud Cake

In spite of the fact that mud technique has been so highly developed that the mud cake can be kept down to a practically negligible thickness, many wells are drilled with mud fluids that build very thick cakes on the wall of the hole. Such thick cakes are almost always tenacious in character and are not readily removed by the cement as it passes up behind the pipe. When the thick mud sheath does slough off it may contaminate the slurry. Furthermore, the thicker the cake the less will be the clearance between the casing and the wall of the bore. The best procedure is, of course, the use of a mud with good wall-building qualities (one that forms a very thin cake that is readily removed) while drilling and to make sure of the condition of the mud before cementing. When down-hole conditions permit, it is generally advantageous to circulate with a properly conditioned mud before the cement job is started and to continue circulation for the period of time necessary to clear the hole of all sand and cuttings and to equalize the weight of the fluid throughout the depth of the hole. It must be remembered, of course, that where the mud is controlling a high pressure formation nothing must be done to lower the weight of the fluid in the hole. The weight, however, can be maintained in a good mud just as easily as, if not more easily than, in a poor mud.

The thicker the mud cake the more the chances are of harmful effect on the cementing of a string of pipe. Tests ([7]) have shown that when hydraulic action is provided by a float shoe much of the mud cake around and just above the shoe will be removed; but when it is desired to insure the bond of the cement for some distance above the shoe, the removal of the mud cake can be done effectively by wall-scraping.

The circulating fluid employed while wall-scraping should naturally not deposit a mud sheath that will be detrimental to the cementing job. When mud is used for circulation with the wall scraper it should be so conditioned that the thinnest mud cake possible will be formed when the formation is sufficiently pervious to take water from the fluid; and what little mud does collect on such formations should easily be displaced by the passage of cement. In many cases most of the formations scraped are impervious shale beds and it is doubtful if a good mud will form any cake on such beds. Mud conditioning is now so advanced, however, that there should be little difficulty in mixing a circulating fluid that will meet any down-hole conditions.

The depth of cut to be made by the wall scraper for mud removal will depend on well conditions and is greatly influenced by the opinion of the operator. Some scrape only to the original gauge of the bit, thus removing nothing but the mud cake from the formation; others cut into the formation from a fraction of an inch to several inches in order to assure a good bond and to increase the thickness of cement around the pipe.

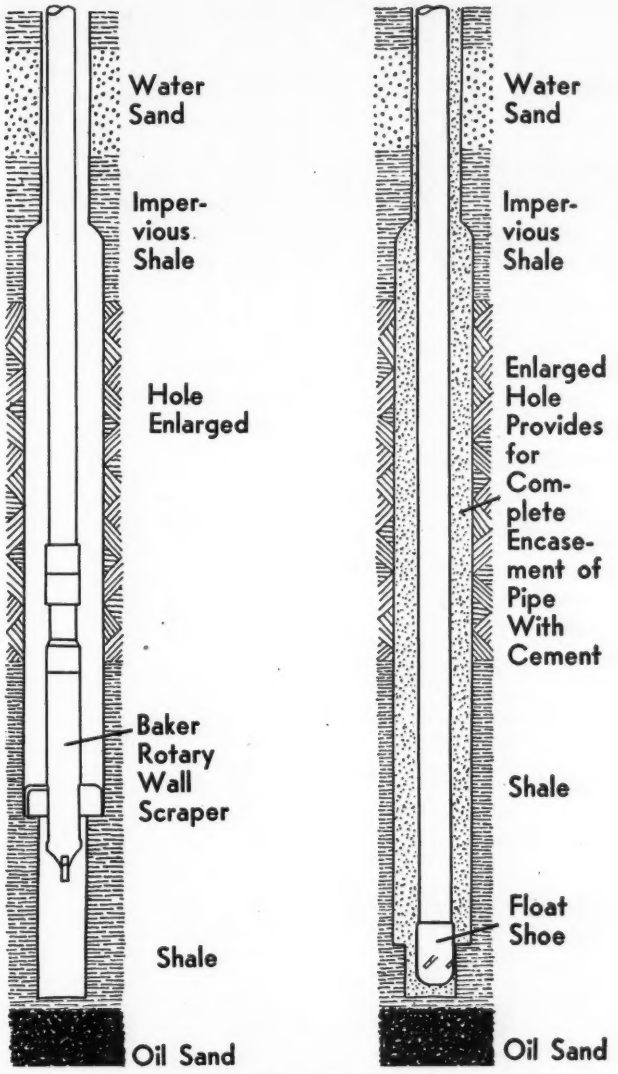


Fig. 8—To the left, the wall scraper is shown in the process of enlarging the hole. To the right the casing has been run and the shoe inserted in the original hole below the enlarged portion. Complete encasement of the pipe by cement has been provided by the "bottlenecking" of the hole.

Preparation for Repair Work

A very conclusive argument for doing everything possible to make the primary cement job a good, efficient one is the necessity that so

Fig. 9—Under some conditions it is desired to wall scrape the hole all the way to bottom as shown in the drawing above. The casing is then cemented as shown.

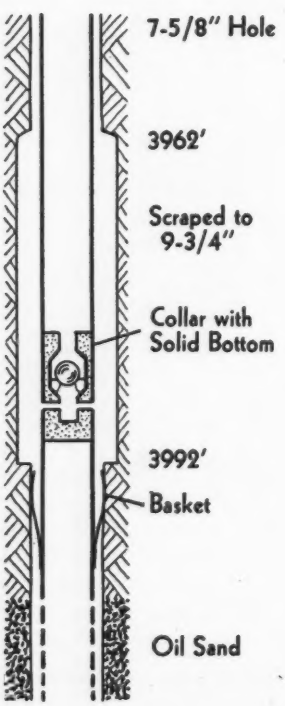


Fig. 10—Assurance of complete encasement at the C. P. is obtained by wall scraping at and above the position of the cementing collar.

frequently arises for some repair work, especially for recementing. Repair jobs are, moreover, generally more difficult to perform than original cementing jobs. Most repair jobs, however, arise from causes other than improperly performed primary cementing operations but the extensive use of cement in repair work has proved its value in well maintenance.

All repair jobs cannot be foreseen nor forestalled, although many can be expected. Numbers of them result from the normal changes in down-hole conditions such as water encroachment and depletion of producing zones. In most cases the preparation of the hole for the cement repair job is a definite part of the cementing operation itself and will therefore be discussed later when details of repair operations are presented.

. One preparatory measure, however, should be taken before any repair job is planned. No matter how new or old the well is, everything possible should be learned about the subsurface history and equipment before the method of repair is decided upon. The cause as well as the actual effects which make the repair work necessary should be determined, if possible, and even geological data should be examined. The cases are usually specific and individual and each requires particular consideration. Many, of course, fall into general groups but each will still usually require peculiar treatment.

Removal of mud or any foreign matter is frequently necessary for repair work or recementing if the greatest success is to result from the job. When recementing a string of casing immediately following an unsatisfactory water shut-off test it is usually advantageous to cut away the old cement and some of the formation below the shoe to aid the slurry in getting access to the incompletely cemented annulus around the pipe.

When the cement is to be placed behind a liner that has been in a well for some time, other means than scraping must be employed to remove the foreign matter clogging the face of the formation. When a liner can be pulled from the well, however, scraping of the wall can be accomplished and there are cases where the results obtained make the removal of the liner well worth while.

Until comparatively recently little attention was paid to preparing the inside of the casing for running of the tools to be used for cementing operations. Yet the casing through which these tools must pass will frequently have obstructions on the inside face that will either prevent the tools from passing through the casing or injure any packing material with which the tools are equipped and on which the operation of the tool depends. The obstructions on the face of the casing have been found to include incrustations of cement that were never removed when drilling out after a cement job; burrs made when gun perforating the casing; and paraffin, corrosion or other foreign material adhering to the inside of the pipe. Tools such as cement retainers have frequently been tripped prematurely by the obstructions on the inside of the casing and many pieces of down-hole equipment have been condemned for not performing properly when the failure was due to such obstructions.

The removal of deposited material of any kind, hard or soft, or the smoothing out of burrs on the inside face of the casing can be done effectively by running a rotary casing scraper through the pipe. This tool consists essentially of a body in which three long, reamer-type blades are vertically mounted. These blades are held against the inside face of the casing by strong coil springs. As the tool is rotated, the blades scrape the face of the pipe and remove the obstructions.

The casing scraper is generally inserted in the drilling string between the bit and drill collar and, as shown in Fig. 11, is now frequently used when drilling out cement tailings after a cement job to provide a casing free of any cement sheath when subsequent operations have to be performed. In wells where the casing has not been cleaned (which is the case with all old wells) the same procedure is followed without the necessity of drilling out a solid column of ce-

ment; and when casing is being scraped preparatory to repair work the operation is easily and quickly performed. In Fig. 12 the casing scraper is shown smoothing out burrs left by a gun perforating job and in this case the casing scraper is followed by a junk basket. Any heavy material scraped off the wall of the casing is here carried up along the chamber of the junk basket and then, when the velocity of the fluid is reduced by the enlarged annulus at the top of the chamber, the heavy pieces drop down into the chamber and become trapped. In many cases bullets that have not penetrated the casing have been recovered in the basket.

In many repair operations only clean-out equipment consisting of portable masts and hoists without rotary attachments are available. The casing scraper can be used with such equipment, however, by employing an endless spinning rope and wrapping this around the tubing and the cathead, tubing being used for running the casing scraper under these conditions. In some cases the scraper has been rotated manually with tubing tongs but power furnished by the cathead is more satisfactory and is adequate for probably any job that might be encountered.

* * *

Many new types of cementing equipment have been developed during the past few years. A knowledge of what the equipment will do, how specific designs can be applied to meet different problems and what has been accomplished by the various types in actual practice will aid in selecting the best method for the placement of cement both for the primary job and for repair work. A wide variety of methods and equipment will be discussed in subsequent issues.

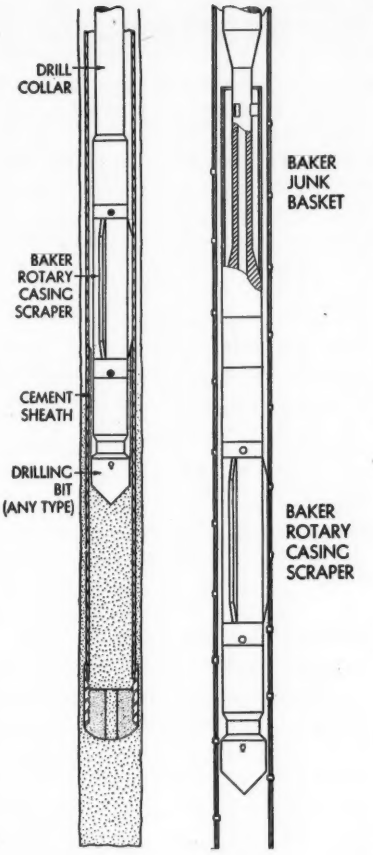


Fig. 11 Fig. 12

Fig. 11—The casing scraper is here shown made up above the bit and removing the cement sheath left by the bit as the cement tailings are being drilled out.

Fig. 12—The scraper is here being used to remove burrs found on the inside of the casing after a gun-perforator job. A junk basket is above the scraper.

** "Bottlenecking" is a term widely applied to the enlargement of the hole by means of a wall scraper at and above a point at which the shoe of a string of casing is to be positioned to provide a thick, cement anchor plug and thus to increase the effectiveness of the cement job.

Bibliography

5—"Well Cementing" by B. C. Craft and R. S. Kail, presented at A.I.M.E. Meeting, Houston, Texas, May 8, 1944.

6—"Landing and Cementing Long Water Strings" by J. B. Case in Baker Broadcast No. 11.

7—Reported in "Oil Well Cementing Factors Influence Bond Between Cement and Formation" by P. H. Jones and Denis Berdine, Spring Meeting, Pacific Coast District, A.P.I., Los Angeles, California, March 19, 1940.

BUYS AND SELLS LAND

I offer $40 an acre for land within five miles of the Richfield Oil Corporation's 3 well drilling-Panorama-Elkhorn-Carrizo Plains area. Also $1 per ac. bonus for leases. Will sell 2½ to 10 acre parcels at $60 per acre. F. Delker, 2219 W. Venango St. (40) Phila. Pa. 2/5d

BUY WAR BONDS

M. & B. S.

TIME TO CHECK COSTS

Make sure you are not overlooking an important factor in your production costs.

NOBS recent developments in dehydrating chemicals have resulted in outstanding savings on many leases.

NOBS DEHYDRATING CORPORATION

2465 East 53rd Street
Kimball 9288
LOS ANGELES 11, CALIFORNIA

General Drilling Co.

CONTRACTORS
SUPERVISION

"Remember, it's the last cost that counts, not the first."

Suite 1215
453 So. Spring St.
Los Angeles, Calif.

Telephone: Michigan 6316

modernized
WATER WITCH SERVICE
in oil wells
serving California fields

OILFIELDS SERVICE CO.

R. D. Elliott, Manager

529 Roosevelt Rd. Long Beach — Ph. Long Beach 42086

Gollum on Extended So. American Trip for Security

Security Engineering Co., Inc., is sending R. L. (Bob) Gollum on a six-months' South American sales trip, on which he will cover all the major oilfields on the Northern part of the continent.

R. L. Gollum

Gollum, who has represented Security out of both the Whittier, Calif., home office and through the export offices of the company in New York, will bring South American oil operators the latest information on the Security line of tools which include the Sievers Reamer; Securaloy, drillable oilfield metal; the company's completion and production tools; the new Security casing scraper; a complete line of cast and forged steel valves and cast steel fittings; and since Security recently bought out Crum-Brainard Co., Ltd., Gollum will also represent on the Pan-American trip the famous Crum-Brainard Roller Bit.

Leaving Los Angeles January 2, he was scheduled through Mexico City and Balboa to Maracaibo, where he will cover the vast oilfields about the lake; thence to Caracas and Barcelona and the big fields of Quirequire, Caripito, Jusepin and Santa Barbara.

March 6 will see Gollum in Port of Spain, Trinidad, with visits to San Fernando, Point-a-Pierre, Siparia, Point Fortin and Palo Seco. After a return to Maracaibo he will hop to Colombia, visiting Barranquilla, Barranca Bermeja, and Bogota. In Ecuador in May he is slated for Guayaquil, Quito and various Ecuadorean fields. In Peru he will make his headquarters in Lima. June will see him returning via Bogota to Balboa and thence home through Mexico to the West Coast.

The Security salesman will make his longer jumps all by plane, but will travel in the fields by auto, train and boat. He will sleep in company camps and palatial hotels. His itinerary will afford time for many return calls and the length of time given will make it one of the most complete coverages to be attempted by an American oil tool concern since before the war.

Gollum will carry with him a complete set of working models of the various Security tools. Orders will be serviced from the company's home office at Whittier and through branch offices in New York and in Houston, Texas.

Marcus Haines Joins Vernon Tool

Vernon Tool Company, Ltd., Alhambra, California, manufacturers of oil well tools and specialties, announces that Marcus W. Haines is now employed in the firms production engineering department. Haines, better known as "Marc" to his many friends in the oil industry, has had twenty years of experience in drilling and production work as general superintendent of several oil companies, and his appointment further increases Vernon Tool Company's service to the oil industry.

Marcus Haines

Nomads Elect Officers for 1945

The election of officers and talks by the past presidents were the features of the Annual Meeting of the Los Angeles Chapter of Nomads held in Los Angeles on Wednesday evening, January 10, 1945. The meeting was a closed business session confined to Nomads. The officers selected for the coming year were:

Elmer R. Smith, President; William McGraw, Vice President; J. V. Robinson, Secretary; Fred Tyler, Treasurer; H. E. Cassidy, Sergeant at Arms; C. M. Byron, Assistant Secretary; Waldo Moore, Assistant Treasurer; Custer Morrow, Deputy Sergeant at Arms; Henry Pullman, Regent; Roland E. Smith, Regent.

Elmer Decker, first president of the Chapter spoke on the aims and objectives of the Nomads and gave a history of its founding in 1938. Ted Sutter, next president, told of the organization work done in getting the association formed and its nationalization. Ernie Fowks then spoke of the activities of the other chapters at Houston, New York and Tulsa and of the inter-chapter relationship. Henry Pullman, probably the most widely travelled of both presidents and Nomads in general, discussed the standing the organization has achieved in foreign fields. Roland Smith, as retiring president, described the workings of the Los Angeles Chapter and its growth during the past years.

Annual reports were made by the secretary and treasurer and a summation of the membership status was presented by Jim Robinson, chairman of the Membership Committee.

Park Back With Eastman

The Eastman Oil Well Survey Corporation takes pleasure in announcing the return of Stafford Park to his former duties in the Long Beach, California office. Having served over two years in the Navy, Lt. Park has seen considerable action in the combat areas.

TURN IN WASTE PAPER!

One hundred pounds of waste paper will make 650 cartons for K-Rations.

Union Oil Expands Operations in Montana

On January 1 Union Oil expanded its complete operations—production, refining, and marketing — into an area east of the Rockies when it formally acquired the facilities of the Glacier Production Company in Montana.

R. D. Smith, former General Superintendent for that company and a veteran Montana oil man, heads the new division as Assistant to the President with offices at Great Falls.

The new acquisition adds to the Company's present holdings some 90,000 acres of oil and gas lands, located for the most part in the Cutbank Field, a few miles south of the Canadian border. Also included in the transaction are a refinery, a natural gasoline plant, approximately 40 miles of pipeline, and a distribution system extending through Northern Montana and Idaho. The properties and wells producing only natural gas were not purchased; but are to be operated under contract.

Field Operations

In taking over the oil producing properties, the Company acquired about 3000 barrels of high gravity crude oil from 160 wells in the Cutbank Field.

Under its own name, Union Oil has already expanded its exploration with a wildcat well drilling at Whiplash, two miles north of Cutbank. The program will be extended to additional prospects at several other localities.

Wells at Cutbank are drilled to relatively shallow depths with cable tools. For the present, the continuous operation of two strings of tools in that field is contemplated.

E. P. Tallant, formerly Chief Production Engineer for California, who has been in Montana for the past year, will act as Superintendent of Field Operations. He will be in charge of drilling and production on additional holdings in the Rocky Mountain area as well as on the lands transferred from the Glacier Production Company.

The Company also, some time ago, established a centrally located geological office in Laramie, Wyoming, with Max Krueger in charge.

Refining

The Glacier Production Company's refinery, which Union Oil has now acquired, is located about four and one-half miles east of the town of Cutbank. It is small but modern, with a throughput capacity of 4,500 barrels daily.

E. P. Parkin, who operated the Refinery for Glacier, will continue as Superintendent.

This aerial view was taken looking approximately westward over the Glacier Production facilities. On the left hand side of the road is the refinery, and on the right, the absorption plant, garage, offices and cottages.

R. D. Smith heads the new division as Assistant to the President. He is an experienced oil man, widely known in Montana. He was formerly General Superintendent for Glacier.

Baker Provides Retirement Income Plan for Employees

The recently inaugurated Retirement Income Plan on behalf of employees of Baker Oil Tools, Inc. marks another important step in the history of this forward-looking organization.

Participation is entirely voluntary by employees of 3 years standing, the company paying the major part of the cost by deposits in a trust fund. No monies deposited by the company are recoverable by it, and under no circumstances shall funds be used except for the exclusive benefit of participants and their beneficiaries.

Benefits based upon a large group basis are far beyond those obtainable by the employee acting as an individual, and a sum far in excess of his contributions is payable to an employee leaving service of the company after several years of participation in the plan.

In his letter of announcement, President R. C. Baker says in part: "The security offered by the plan should serve to keep us at a high standard at all times, and as we maintain that high standard I want each employee to participate in the Company's success."

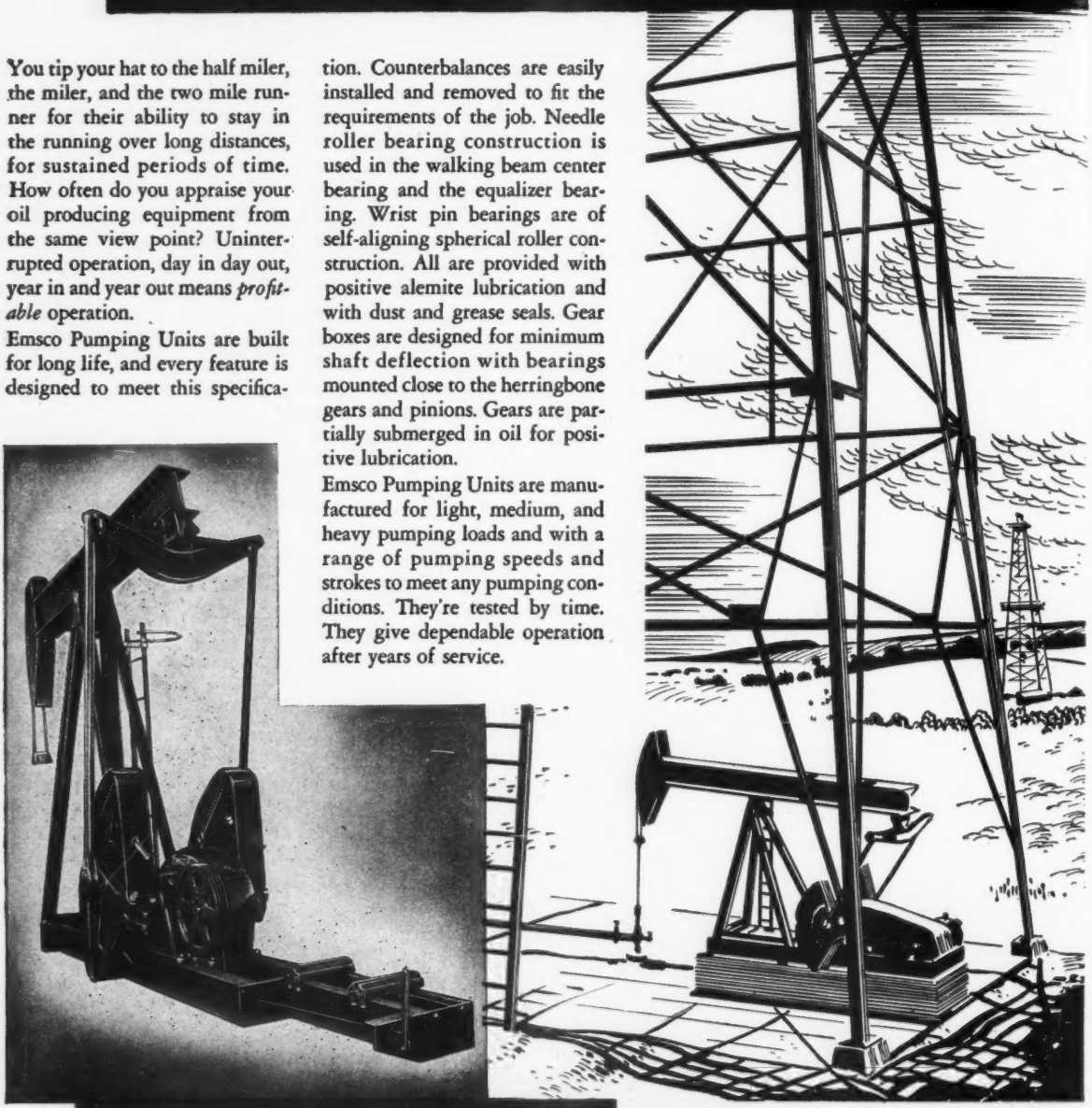
Staying Power FOR THE "LONG RUN"

EMSCO PUMPING UNITS

You tip your hat to the half miler, the miler, and the two mile runner for their ability to stay in the running over long distances, for sustained periods of time. How often do you appraise your oil producing equipment from the same view point? Uninterrupted operation, day in day out, year in and year out means *profitable* operation.

Emsco Pumping Units are built for long life, and every feature is designed to meet this specification. Counterbalances are easily installed and removed to fit the requirements of the job. Needle roller bearing construction is used in the walking beam center bearing and the equalizer bearing. Wrist pin bearings are of self-aligning spherical roller construction. All are provided with positive alemite lubrication and with dust and grease seals. Gear boxes are designed for minimum shaft deflection with bearings mounted close to the herringbone gears and pinions. Gears are partially submerged in oil for positive lubrication.

Emsco Pumping Units are manufactured for light, medium, and heavy pumping loads and with a range of pumping speeds and strokes to meet any pumping conditions. They're tested by time. They give dependable operation after years of service.



EMSCO DERRICK & EQUIPMENT COMPANY

Houston, Texas • LOS ANGELES, CAL. • Dallas, Texas

Distributors:

Oklahoma, Kansas and Illinois ... THE BOVAIRD SUPPLY CO., Tulsa, Okla. • Texas, Louisiana, Arkansas and New Mexico ... THE MID-CONTINENT SUPPLY COMPANY, Fort Worth, Texas • All States Except as Noted Above ... EMSCO DERRICK & EQUIPMENT CO., Los Angeles, Calif. Export ... THE CONTINENTAL SUPPLY CO., INC., New York, N.Y. • Canada ... THE TURNER VALLEY SUPPLY CO., Calgary, Alberta, Canada

THIS LAUGH

OFF!!

A Washington hotel clerk told the three SPARS he was sorry no rooms were available, but if they didn't mind sharing a room with three sailors it might be arranged. Later the WAVES came in and again the accommodating sailors agreed. To add to the clerk's distress a helpless but beautiful blonde appealed for shelter. The sailors again proved their hospitality. . . . The next morning the three sailors came into the breakfast room and each ordered a doughnut and a cup of coffee. They were soon followed by the SPARS and then the WAVES—each ordering doughnuts and coffee. Finally the blonde appeared, evidently rested, and ordered a doughnut and a cup of tea. . . . It just goes to show that nine people out of ten drink coffee for breakfast.

A policeman came home late and, undressing in the dark, slipped into bed. His wife woke up and said, "Clancy, would ye mind runnin' down and gettin' me a headache powder? My head's splittin'."

Clancy fumbled into his clothing and complied. The druggist served him and said, "By the way, aren't you Officer Clancy?"

Clancy nodded.

"Well, then," asked the dispenser, "what are you doing in that fireman's uniform?"

A girl and a boy were walking down a country road. Said he: "Winter draws on."

Girl: "Is that any of your business?"

Father: Why were you kept in at school?

Son: I didn't know where the Azores were.

Father: Well, in the future just remember where you put things.

"I represent the Mountain Wool Company, Madam. Would you be interested in some coarse yarns?"

"Gosh, yes. Come right in and tell me a couple."

"I'm glad I'm not a Russian."

"Why?"

"Can't speak a word of Russian."

Girls who take cod liver oil have legs like this—!!
Girls who ride horses have legs like this—()
Girls who frequent bars have legs like this—)(
Girls who use good judgment have legs like this—X

Private: Who introduced you to your wife?

Sgt.: We just met. I don't blame nobody.

An old gentleman and his wife lived across from the local cemetery and they were sitting out on the porch one moonlight night.

The wife: "Pa, every time I look across the street I keep thinking of our dear daughter lying over there and it makes me very sad."

Husband: "Yes, Ma, it makes me unhappy too. Sometimes I even wish she were dead.

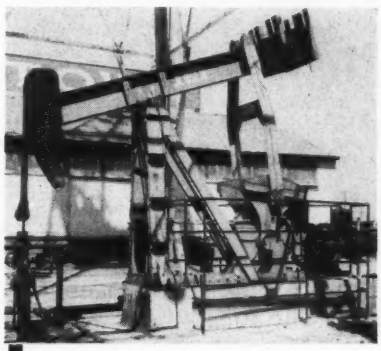
Bride: "When you married me I thought you were daring and courageous."

Groom: "That's nothing. Name one person who didn't."

Along with the old shoes tied on the back of the newlyweds' car was a sign which read—"Amateur Night."

The bachelor's a crazy guy,
And has a lot of fun.
He sizes all the cuties up,
But never Mrs. one.

There was an old woman
Who lived in a shoe.
She had so many children
She didn't know what to do . . .
which was obvious.



JENSEN makes California wells more profitable!

Above: Picture of a JENSEN Pumping Unit saving money for a California producer. Not an unusual picture. ANY California well is likely to be more profitable and satisfactory when JENSEN equipped.

Ask owners. Ask Mr. Turner or The Oil Tool Corporation. See Composite Catalog pages 1473-6. No JENSEN Unit will ever save money for you unless you work up some interest.

California Representative
A. V. TURNER
445 W. 6th
Downey, Calif.
Phone: Topaz 2-2410

Stocked by
THE OIL TOOL CORPORATION
3075 Cherry Avenue
Long Beach, Calif.
Phone 481-81

JENSEN
BROTHERS MFG. CO.
Coffeyville, Kansas, U.S.A.

EXPORT OFFICE: 50 Church St., New York City

J. C. Voiles

Plant Rubber Announces Two Changes

Plant Rubber & Asbestos Works announces the appointment of J. C. Voiles as Chief Engineer with headquarters at San Francisco main office. Voiles will be succeeded by R. E. Bounds as Manager, Industrial Construction Department for Los Angeles District, a qualified insulation engineer with many years of experience in the applied insulation field.

Mr. Voiles' activities since joining the Plant Rubber & Asbestos organization in 1933, have been centered on oil industry insulation in the Southern District. In his new position, Mr. Voiles' specialized knowledge will be available to all areas. The company was established in 1898 and has an enviable record of war production, its No. 3 plant at Emeryville having earned the coveted Army-Navy "E" Flag in November, 1943 and subsequently two stars for continuing excellence of production. The company manufactures Plant "Precision Molded" 85% Magnesia insulation, and mechanical packings, has contracting units for the application of its products, and a complete engineering staff.

R. E. Bounds

Thermoid Co. Buys Grizzly

F. E. Schluter, president of Thermoid Co., Trenton, N. J., has announced plans to purchase Grizzly Manufacturing Co.'s West Coast plant and equipment located at Los Angeles, California. The purchase will include the complete line of Grizzly oil field, industrial rubber and aviation products and all patents covering those products — including inventories and accounts receivable.

The announcement states that there will be no change in the Grizzly line of industrial and oil field products and Grizzly trademark will be continued on those products by Thermoid for a limited period of years. Mr. Walter Smith, Vice President and General Manager of Grizzly Manufacturing Co., will continue for a limited time as manager of the Los Angeles plant.

This acquisition will supplement Thermoid's already broad lines of oil field and industrial rubber products. All Grizzly oil field products will continue to be manufactured in the Los Angeles plant including Rotary Hose, Slush Pump Suction Hose, Brake Blocks, Drill Pipe and Tubing Protectors, Wire Line Savers and Blowout Preventers.

Grizzly Rotary Hose and other oil field products have long maintained an outstanding position in the oil fields. These products will be combined with Thermoid's line of oil field products in a combined sales program. The warehouses now maintained by Grizzly at Houston, Tex., Oklahoma City, Okla., Bakersfield, Calif., Casper, Wyo., and Alberta, Canada will be continued. Grizzly Manufacturing Co. of Paulding, Ohio, has agreed to withdraw from the manufacture and sale of oil field products and has entered into a non-competitive agreement covering other products made at the Los Angeles plant.

Grizzly industrial rubber products —such as Air Hose, Steam Hose, Suction Hose, Packing and Transmission and Conveyor Belting—will also continue to be manufactured at the Los Angeles factory.

New products for Thermoid's Industrial Rubber Division will be Hydromatic Press Pads for factories and patented Tail Wheels, now standard on many war planes and visualized for important industrial uses on factory mobile equipment.

"Growth of Thermoid has long made desirable a Pacific Coast Factory," said Mr. Schluter. "We have considered it one of our postwar necessities. With factory and warehouse facilities in Los Angeles, we will be able to give better and faster service to Thermoid's many customers on the Pacific Coast."

C.N.G.A. Elects New Members

E. S. Landis, Mgr. Petroleum Div., Neptune Meter Co.; W. I. Meador, Double Seal Ring Co.; and Geo. S. Perry, West Coast Mgr., D. W. Haering Co. have been elected members of the California Natural Gasoline Association.

STOP FUMBLING! Don't lose your patience looking for locations, spud dates, etc., on California Drilling Wells. CALIFORNIA OIL WORLD NEWS SERVICE, a complete weekly report, carries a continuous story on every well in EACH issue. Write for a sample copy NOW!

Death Takes Herbert R. Macmillan

Herbert Roderick Macmillan, one of the best known attorneys and oil men in the West, died Saturday, January 13, 1945, at his apartment at 5930 Franklin Avenue, Los Angeles, California. He was 68 years of age.

Mr. Macmillan was Vice-President and general counsel of the Macmillan Petroleum Corporation, for 21 years and a former President of the California Oil and Gas Association.

He had been ill for the past three months, suffering from coronary thrombosis. During the major portion of that time he was in the hospital, returning to his home shortly before his death.

He was born in Unionville, Nevada on July 9, 1876. He received his early education in the public schools of Nevada, California, and Utah and graduated in law from the University of Michigan Law School.

He was admitted to the bar in Ogden, Utah when he was only 21 and immediately entered practice with his father, James Henry Macmillan, who was one of the pioneer attorneys of the West.

In 1914, 1915 and 1916 Mr. Macmillan served as President of the Utah State Bar Association and was instrumental in bringing to Salt Lake City the first annual meeting of the National Bar Association ever held west of Chicago. During his legal career in Utah, he represented the majority of the large mining interests in the Rocky Mountain region and was for a considerable time a Republican Party leader in the state.

Herbert Roderick Macmillan

In the oil industry, besides his association as an executive with the Macmillan Petroleum Corporation he was President of the Oil and Gas Association for two terms, one of the first persons ever to serve two consecutive terms in this capacity.

He was a prominent Mason, having entered the Blue Lodge, Weber No. 6 when he was 21 and having served as Grand Master of Utah in 1917 and 1918. He was a 32nd degree York and Scottish Rite Mason and took the 33rd degree in 1919—at that time being the youngest person ever admitted to this degree.

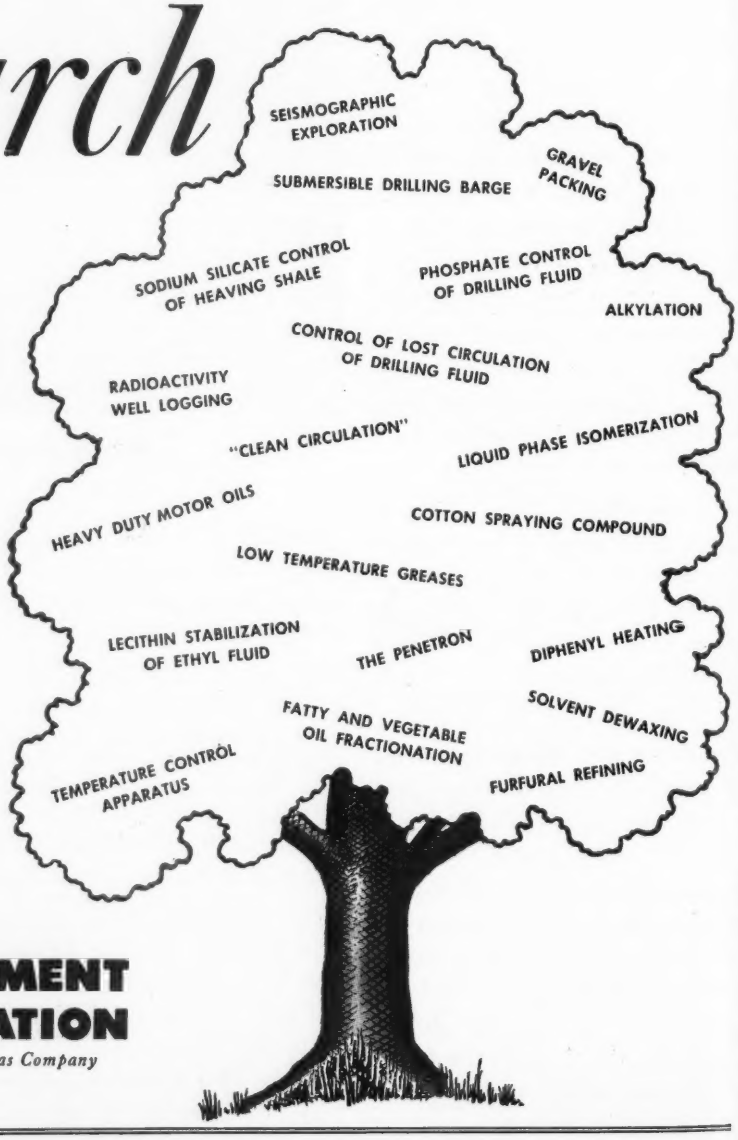
He leaves a sister, Mrs. Paul Carson; four brothers, R. S. Macmillan, President of the Macmillan Petroleum Corporation; J. H. Macmillan and Morris P. Macmillan of Los Angeles, and Alfred Macmillan of El Dorado, Arkansas; a daughter, Mrs. George A. Dockweiler; two sons, H. Gordon and Malcolm R. Macmillan, and five grandchildren, Beverly Ann and Lynda, daughters of Malcolm; Gretchen and Brenda, daughters of Mrs. Dockweiler, and Herbert Macmillan Booth, son of his deceased daughter, Mrs. Marie Booth.

He was a widower, his wife, Mrs. Helene Bohn Macmillan, having died in 1934.

The *Fruits* of *Years of Costly Research*

OVER many years, hundreds of Texaco scientists and engineers, working on the research and development problems encountered in the locating, producing and refining of petroleum, have contributed many important new discoveries.

Developments made by Texaco have saved millions of dollars for many oil companies ... set new standards of product quality ... solved difficult problems in radically new and efficient ways.



TEXACO

TEXACO DEVELOPMENT CORPORATION

A Subsidiary of The Texas Company

Field Development

Los Angeles Basin

Two Drilling In Imperial County

Two wells are drilling ahead in separate portions of Imperial county. In the Holtville area The Texas Co.'s Grupe-Engebretsen No. 1, sec. 8-16s-16e, is making hole at 3500 ft. after cementing 13⅜ in. casing at 1023 ft. Amerada Pet. Corp's. Veysey No. 1, sec. 9-13s-14e near Brawley, is drilling at 4060 ft.

Brea-Olinda Well Redrilling

Shell Oil Co. is redrilling its Pico No. 3A in the Brea-Olinda field. Located on sec. 2-3s-10w, the well milled through a 10 in. string at 1453 ft. and is making new hole at 4451 ft.

Seacoast Oil Co. has rig up and is waiting for contractors equipment to spud Wardman No. 1 on section 3 of the township. The well seeks production comparable to that found in this oil field.

Yorba Linda Well Deepens

George Morgan has moved in cable tools and is deepening his Fricke No. 2 in the Yorba Linda field at 2085 ft. The well is located on lot 3, block 6, Yorba Linda Tract in sec. 21-3s-9w.

Athens Area Try Started

General Exploration Co. Johnston No. 1, west of the northerly tip of the Athens field, is spudded and drilling below 500 ft. The try is located on sec. 11-3s-14w, southwest of Imperial Blvd. and Western Ave.

Rosecrans Well Makes Good Flow

Nevada Pet. Co. redrilled its Colby No. 3 at the easterly edge of the Rosecrans field to recomplete at 4863 ft. flowing an 18 bbl. per hour rate clean 46.0 gravity oil. At last report the well was making an estimated 300 B/D through a 16/64 in. bean. Additional work in the area may be expected as a result of this substantial production.

Lincoln Park "Cat" Scheduled

Dumm Bros. Pet. Corp. is preparing to drill Dumm Bros.-Olympic No. 15 near Lincoln Park in the City of Los Angeles. The site is 212 ft. easterly along the northerly line of Valley Blvd. from the East line of Soto Street, thence 928 ft. northerly at right angles in sec. 24-1s-13w. The well will utilize portable drilling equipment.

LOS ANGELES BASIN WILDCATS

Area	Well	No.	Section	Depth	Status
Athens	Gen. Expl. Co. of Calif., Johnson	1	11, 3-14	500	Drilling
Aliso Canyon	Standard Oil Co., Del Aliso	1	29, 3-16	9569	Drilling
	Standard Oil Co., Frew	1-3	29, 3-16	7800	Testing
	Standard Oil Co., Ward	3-1	27, 3-16	7186	Drilling
Calabasas	Simons, A. B., Well	1	22, 1-17	2260	Drilling
Castaic	Charter Oil Co., Well	1	18, 5-16		Graded roads
Chatsworth	Shell Oil Co., Schonfeld	1	30, 2-16	4697	Drilling
La Habra	Assoc. Piping & Eng. Co., Simmons	1	1, 3-11		Rig
Las Llajas	Standard Oil Co., Brady Est.	2-1A		1291	Drilling
Lincoln Park	Dumm Bros. Pet. Corp., Olympic	15	24, 1-13		Location
Long Beach	Hilo-NW Extension, Steward	1	14, 3-14	5281	Drilling
Montebello	Hilo Oil Co., Montebello-Pellissier	1	4, 2-11	3700	Abandoned
Newhall	Anderson, J. I., Tomato Can	1	11, 3-16	3740	Drilling
	British-Am. & The Texas Co., NLF	1	21, 4-17	7699	Completed
	British-Am. & The Texas Co., NLF	2	21, 4-17		Foundation
No. Covina	The Texas Co., Covina	27-1	7, 1-9	5054	Abandoned
Pico Canyon	Standard Oil Co., Pico C. O.	42	1, 3-17	7016	Drilling
Pomona	Jones, Everett, Well	1	17, 2-9	560	Idle
Puente	Hacienda Oil Co., Well	1	27, 2-10		Location
	Hansen, Melvin, Corehole	3	24, 2-10	1900	Idle
San Jose Hills	Continental Oil Co., Bayley	1	29, 1-9	843	Drilling
	Ohio Oil Co., Lagrand	1	30, 1-9	3933	Drilling
	The Texas Co., Garnier	1	35, 1-10	6618	Drilling
Turnbull Canyon	Capital Co., Capital	1-2	12, 2-11		Rig
Rosecrans	Wilshire Oil Co., Central Heights	1	28, 3-13	8567	Abandoned
Whittier	Hilo Oil Co., Hilo-Cinabar	1	1, 3-11	4742	Drilling
W. Coyote	Standard Oil Co., Lewis	1	11, 3-11		Foundation
	Imperial County				
Brawley	Amerada Pet. Corp., Veysey	1	9, 13-13	4060	Drilling
Holtville	The Texas Co., Grupe-Engebretsen	1	8, 16-16	3500	Drilling
	Orange County				
Brea Canyon	Seacoast Oil Co., Wardmann-Comm.	1	3, 3-10		Rig
Buena Park	Gen. Pet. Corp., Heath	2	34, 3-11	10592	Drilling
	The Texas Co., Stern	1	1, 4-11	10431	Sampling
Costa Mesa	Delaney Pet. Co., Karales	1	19, 6-10		Rig
	Macoil Co., Townsend	3	21, 6-10	4900	Drilling
Huntington Bch	Atha Expl. Co., Newland	12-3	12, 6-11		Rig
Kraemer	Mid. Cal. Pet. Co., Mid. Pet.	K-1	24, 3-9	2512	Fishing D. P.
	San Bernardino County				
Chino Hills	Chino Hills Oil Co., Kraemer	2	33, 3-28	1366	Drilling

Basin Wildcat Now Abandoned

Wilshire Annex Oil Co.'s Central Heights No. 1, near Olive and Central Avenues east of Rosecrans and north of Dominguez fields, is abandoned at 8567 ft. All zones were barren to the 9th Zone equivalent where some oil showings were encountered. After a careful analysis of the sands indicated that the zone was wet the well went on the hook without testing.

North Covina Well Abandoned

The Texas Co. Covina No. 27-1, sec. 7-1s-9w in the North Covina or San Jose Hills area of Los Angeles county, went on the hook at a barren 5054 ft. Bottomed in volcanics the well recovered only a little muddy fresh water on trial of the best showings in the interval 1250-1300 ft. The company's Garnier No. 1, sec. 35-1s-10w of the area, is drilling ahead at 6618 ft. without having reported promising showings.

Ohio Oil Co.'s Legrand No. 1, sec. 30-1s-9w, is drilling ahead at 3933 ft. while Continental Oil Co.'s newly spudded Bayley No. 1 on sec. 29-1s-9w is drilling in the grass roots at 843 ft. after cementing surface casing at 300 ft.

Rosecrans Deep Test Now Plugged

Century Oil Co.'s Miocene test in the Athen-Rosecrans field area, Century-Wright No. 16, drilled to 8301 ft. to discover the Miocene gray. The well plugged to 5070 ft. where 7 in. casing was cemented and gun perforated opposite sand showings in the Howard Park sand zone.

Whittier Try Now Drilling

Hilo Oil Co. Hilo-Cinabar No. 1, sec. 1-3s-11w in the SE Whittier-La Habra area, is drilling ahead at 4742 ft. On a nearby location in the same section Associated Piping & Engineering Co. has rig up for its wildcat try Simons No. 1.

Dominguez Well Prep. To Redrill

Republic Pet. Co. is rigging up to redrill its Republic-Childs No. 4 in the easterly section of the Dominguez field. Located on sec. 34-3s-13w, the well is currently bottomed at 4480 ft. with 9 in. casing bad at 2200 ft.

Old Montebello Well To Redrill

Fullerton Oil Co. is rigging up to redrill its McGinley No. F-29 in the Montebello field. The well is located southeast of the intersection of San Gabriel Blvd. & Lincoln Avenue in sec. 6-2s-11w.

Costa Mesa Try Coring

Macoil Co.'s deep test in the Costa Mesa area is yet coring at 4900 ft. Located at 17th & Whittier Sts. on the bluff above the company's Newport Beach shallow production, the well is reported to have found the shallow sands present and apparently productive. Lacking further discovery at depth, the well should produce heavy oil at rates similar to the field wells.

6ways PACIFIC LINERS MAKE YOUR PRESENT WELLS LAST LONGER

#5 SMOOTH, COMPACT CONSTRUCTION REDUCES LINER TROUBLES

ON a Pacific Pre-Packed Gravel Liner, the sheet steel outer screen forms a rigid, round and smooth outer surface that makes this liner as easy and safe to install as solid pipe! Pacifics can be run through tight spots without damage . . . pass through windows as easily as ordinary liners . . . and their rigid surface prevents deformation of the uniform gravel pack. Once installed, a Pacific Gravel Liner is comparable to a plain steel liner in long, trouble-free operating life under the severest well conditions.

But Pacific Liners are not only easy and safe to install—they also afford the most positive protection you can buy against serious sand problems. With a Pacific, sand is held back in the formation where it belongs . . . never reaches vital pump parts or other production equipment, insuring maximum production from sandy formations, lower equipment expense.

There are many other Pacific features explained in a descriptive bulletin sent free on request. Write for your copy today. Pacific Liners are made in a range of standard and special sizes for all well installations.

PACIFIC

PACIFIC PERFORATING CO., TORRANCE, CALIFORNIA, PHONE TORRANCE 500

Coastal and Northern District

Dunnigan Hills Test Under Way

The Texas Co. is rigging up on Salisbury No. 1 in the Dunnigan Hills area of Yolo county. The well is located in the north half of sec. 20-10n-1e.

Capitan Field Test Indicates Discovery

Formation trial of Shell Oil Co.'s deep test of the Capitan field in Santa Barbara county, Covarrubias No. 1 on sec. 32-5n-30w, indicates a major discovery in the Sespe formation approximately 300 ft. below the present field producing zone. On test of the interval 2850-3400 ft. the well flowed 994 B/D rate clean 39.1 gravity oil for a 40 minute period. Gas increased from a steady to a violent blow during the 1¼ hour period in which the tester was open. The company was last reported coring ahead at 3415 ft. after cementing 7 in. casing at 3290 ft.

Alhambra Valley Wildcat Starts

Ardly Pet. Co. has built rig and is moving in equipment to drill Almond No. 1 on sec. 31-2n-2w in the Alhambra Valley of Contra Costa county. Located a quarter of a mile east of the west quarter of the projected sec. 31, the test lies some 3½ miles south of the town of Martinez.

Bardsdale Well Pumps Good Rate

San Marino Oil Co. Capital Crude No. 3, sec. 7-3n-19w, completed at 2650 ft. pumping a settled 151 B/D of 28.5 gravity crude cutting only 2.0%.

On section 12-3n-20w in the westerly section of the field, Union Oil Co. is starting Dryden Nos. 11 and 12 as the first of a multiple well drilling program. The drilling will be done by Thornbury-Crasner and Bentz, a firm comprising veteran oil men which was newly formed to enter the contracting business.

New Foxen Canyon Discovery Pumping

Four-Five-Six Oil Co. Wickenden No. 1, sec. 34-9n-32w in the Foxen Canyon area near Cat Canyon in Santa Barbara county, completed on the pump at 4606 ft. to discover 500 B/D production of 8 gravity oil. The operator is injecting 75 bbls. daily of kerosene distillate to facilitate production. Additional work is expected to start at once since the company holds 1094 acres surrounding the new strike.

South Mountain Outpost Looks Good

Los Nietos Co. L.B.H. No. 1, sec. 22-3n-21w a little less than two miles southwest of the South Mt. field in Ventura county, is testing the interval 5319-5371 ft. where more oil stained sand was cored. Several bodies of oil sand have been taken below 2740 ft. with the best sands below 4200 ft. Test of the interval 5112-77 ft. recovered 637 ft. of oil in 30 minutes and 5174-5262 ft. recovered oily, gassy mud. A commercial producer here will open a wide area to the drill.

Tar Springs Well Tests

Amerada Pet. Corp. Tar Springs Ranch No. 1, sec. 25-32s-14e in the Huasna area of San Luis Obispo County, tested the interval 3200-3600 ft. and, open 12 hours, recovered 800 ft. of mud, 800 ft. of gassy mud and 600 ft. of muddy oil. At last report the well was coring brown shale below 4100 ft.

North Naples "Cat" Drilling

Shell Oil Co. Dreyfus No. 1, sec. 8-4n-29w, is drilling ahead after cementing 9⅝ in. surface casing at 427 ft. The well is located in the Naples townsite, inshore from the

COASTAL COUNTIES WILDCATS

Area	Well	No.	Section	Depth	Status
	Santa Barbara County				
Foxen Canyon	Four-Five-Six Oil Co., Wickenden	1	34, 9-32	4606	Pumping
Gaviota	Standard Oil Co., Hollister	1	35, 5-33		Rig
Los Alamos	Bel-Air Oil Co., Price	1	21, 8-32		Rig
Los Olivos	Hub Oil Co., La Laguna	1	7, 7-30	4961	Prep. run csg.
N. Naples	Shell Oil Co., Dreyfus	1	8, 4-29	514	Drilling
	Ventura County				
Camarillo	Barth, D. A., Well	1	32, 2-20	520	Idle
Eureka Canyon	El Rika Oil Co., Well	8	33, 4-18		Location
Happy Camp	Cal-Camp Oil Corp., Harrington	1	21, 3-19		Grade roads
Hopper Canyon	Dodge, Inc., Signal	7	13, 4-19	2810	Rig pump
Ojai	Delaney Pet. Corp., Victory	1	8, 4-21	1640	Idle
	Volunteer Pet. Corp., Hilltop	2	7, 4-21	781	Drilling
	Volunteer Pet. Corp., M & L	1	7, 4-21	100	Standing
Oxnard	Lloyd Corp., Ltd., Todd	A-1	6, 1-22	4211	Rig pump
	MacDonald, Burns & Norris, Culbertson	1	12, 1-22		Rig
Santa Paula	Standard Oil Co., Santa Paula	1	10, 4-20		Rig
South Mt.	Los Nietos Co., L.B.H.	1	22, 3-21	5371	Testing
Timber Canyon	Hickey Noble J., Temple	1	22, 4-21	775	Idle
	San Luis Obispo County				
Tar Springs	Amerada Pet. Corp., Tar Springs	1	25, 31-14	4106	Drilling

NORTHERN COUNTIES WILDCATS

County	Well	No.	Section	Depth	Status
Colusa	Standard Oil Co., Davis	1	36, 18n-2w	2283	Drilling
Contra Costa	Ardly Pet. Co., Almond	1	3, 2n-2w		Rig
	Shell Oil Co., East Bay	1	13, 1n-3w	3741	Drilling
	Shell Oil Co., Inc., Jacuzzi	1	34, 2n-2e		Location
Monterey	General Pet. Corp., Vierra	1	7, 13s-2e	4372	Drilling
San Benito	Panoche Pet. Co., Panoche	2		131	Drilling
	San Benito Oil Co., Fries Regan	1	4, 13s-5e	1400	Idle
Solano	Amerada Pet. Corp., Church	1	35, 5n-2e	6986	Redrilling
	Amerada Pet. Corp., Wineman	1	26, 6n-2e	5000	Drilling
	Shell Oil Co., Lambie	1A	25, 4n-1w	2320	Completed
	Shell Oil Co., Lambie	2	30, 4n-1e		Cellar
	Standard Oil Co., Suisun	4	5, 3n-1w	6490	Drilling
	Standard Oil Co., Fontana	1	23, 3n-1w	7944	Fishing
Stanislaus	Continental Oil Co., Azevedo	1	27, 4s-7e	5010	Abandoned
Sutter	Buttes Oilfields, Inc., Buttes-Ward	1	2, 15n-1e	3916	Drilling
Yolo	The Texas Co., Winchester	8-1	4, 6n-4e		Location
	The Texas Co., Salisbury	1	20, 10n-1e		Rigging up

Elwood field in Santa Barbara county.

Eureka Canyon Well Planned

El Rika Oil Co. is completing arrangements to drill El Rika No. 9 in the Eureka Canyon field of Ventura county. The new driller is projected to be some 175 ft. North of Well No. 8 in sec. 33-4n-18w.

Modelo Field Well Starting

Pacific Western Oil Corp. is rigging up to drill Crocker Fee No. 1-D in the Modelo field of eastern Ventura county. First activity here in a long time, the new driller is located 2750 ft. north and 1150 ft. west of the southeast corner of sec. 7-4n-18w.

Macoil Starting in South Mt. Field

Macoil Co. has completed grading its multiple drilling site and has poured foundation for Off No. 1 on sec. 19-3n-20w. The company expended considerable time in ground preparation for its drilling program which will be effected from a concentrated surface site.

Union Oil Co. is preparing to drill Crane No. 5 on sec. 13-3n-21w in the field. Yet operating here are British-American, F. E. Fairfield, and Pacific Western in addition to the previously named operators.

Stanislaus Co. Wildcat Quits

Continental Oil Co. abandoned its Conoco-Gulf-Azevedo No. 1 at 5010 ft. Located on sec. 27-4s-7e in the Westley area of Stanislaus county, the try recovered only mud and fresh water on trials uphole to 3430 ft.

Solano County Gas Developed

Shell Oil Co. which found large volume gas in the early stages of its Solano county Kirby Hills program, has effected commercial production in its Lambie No. 1A no sec. 25-4n-1w. The well bottomed at 2320 ft. to complete in 35 ft. of zone flowing 3,890,000 cu. ft. of gas daily through a ½ in. bean under 650/930# pressure. At last report the well was shut in under 1128# of balanced pressure. The company has dug cellar for Lambie No. 2 on the adjacent section 30-4n-1e.

W. R. Gerard Resumes Santa Maria Drilling

W. R. Gerard, operator in the Santa Maria Valley field, has resumed activity in the field. The next project will be Gerard-Goodwin No. 1 for which foundation is poured 1020 ft. south and 300 ft. east of the north quarter corner of sec. 21-10n-34w.

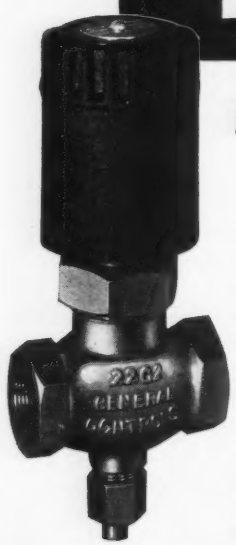
Marysville-Buttes Try Drills For Gas

Buttes Oilfields, Inc. Buttes-Ward No. 1, sec. 2-15n-1e, is drilling at 3916 ft. Located in the Marysville-Buttes gas field area of Sutter county, the driller is the newest of a multi-well drilling program.

LAND FOR LEASE

Available for prompt drilling; approximately 10,000 acres (Southern California) including 1700 acres government leases on well defined anticline never tested. New oil drilling activity in vicinity. Ready market in nearby area for natural gas. Full details to adequately financed principals. Louis E. Mahoney, 710 Wilshire Blvd., Santa Monica, Phone Santa Monica 55631. 2/20d

K-15



MAGNETIC PILOTED PISTON VALVE

General Controls K-15, two-wire, current failure, is a high pressure valve handling large capacities with minimum pressure drop. Main valve held open electrically minimizes pressure loss. Packless, available normally closed. Operates on wide variety of fluids and gases.

Write for Catalog 52

GENERAL CONTROLS
801 ALLEN AVENUE GLENDALE 1, CALIF.
BRANCHES: Boston, New York, Philadelphia, Cleveland, Detroit, Atlanta, Denver, Chicago, Dallas and San Francisco

K & G

At Your Service with The Products of . . .

The Babcock & Wilcox Tube Co.
The Duraloy Company
Wm. F. Klemp Company
Sivyer Steel Casting Co.
Shenango-Penn Mold Co.

Representatives KILSBY K & G GRAHAM *Distributors*

1201 Russ Building San Francisco 4, Calif. GArfield 0955
Standard Oil Building Los Angeles 15, Calif. VAndike 1357

San Joaquin Valley

Edison Area Well Looks Good

Richfield Oil Corp. Cauley No. 2-1, sec. 16-30s-29e near the Edison field, showed much promise on test of the interval 4542-90 ft. Considerable oil sand is reported below 4360 ft. At last report the well had bottomed in basement at 4798 ft. after topping the rock at 4787 ft. and was plugging to run casing for production trials.

Delano Area "Cat" Quits

O'Kane & Brain abandoned Wheeler No. 1 in the Delano area in Basement at 6701 ft. Located on sec. 20-25s-26e the well found the Vedder and Eocene sands barren and entered granite at 6623 ft.

Canfield Ranch Well Abandoned

Tide Water Assoc. Oil Co. abandoned its KCL No. 68-15 on sec. 15-30s-26e in the Canfield Ranch area of Kern county. The well quit at 8132 ft. after finding no oil sand in the Stevens. The company is rigging up to resume exploration in the area with KCL No. 82-22 on section 22 of the township.

Jacalitos Well Flows

Tide Water Assoc. Oil Co. well No. 58-16, sec. 16-21s-15e in the Jacalitos field near Coalinga in Fresno county, completed at 4270 ft. flowing 798 B/D clean 33.1 gravity oil and 567,000 cu. ft. of gas through a 30/64 in. bean under 150/300# pressure.

Magunden Well Pumps Little Oil

Western Gulf Oil Co. Cohn Estate No. 1, on sec. 3-30s-28e, which effected small production in the 5785-5805 ft. interval, reperforated the zone and is pumping only an average 45 bbls. daily net 15.7 gravity oil with a gross cut of some 75.0%.

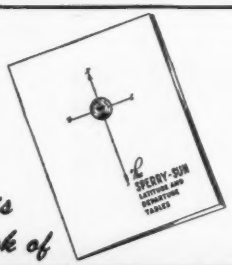
Coles Levee Well Flows

Ohio Oil completed its South Coles Levee Unit No. 56-10 on sec. 10-31s-25e in the Coles Levee field. Bottomed in shale at 9589 ft. the well perforated by stages in the interval 9082 to 9570 ft. flowing a settled 435 B/D clean 47.5 gravity oil and 5,869,000 cu. ft. of gas through a 46/64 in. bean with pressures of 700/1000#.

SAN JOAQUIN VALLEY WILDCATS

Area	Well	No.	Section	Depth	Status
Fresno County					
Cantua	Tide Water Assoc. Oil Co., S. P.	82-15	15, 17-15	7121	Drilling
Jacalitos	Jacalitos Oil Co., Well	1	30, 21-16		Location
	The Texas Co., Caribou-Record	22-18	12, 21-15	1822	Drilling
Mendota	Seaboard Oil Co., Seaboard-Superior	72-6	6, 14-16		Location
Tranquility	Standard Oil Co., Paterson	74	3, 16-14	7234	Drilling
	The Texas Co., Calif.-Cotton	36-23	23, 16-15	9097	Cleaning out
Kern County					
Ant Hill	Amerada Pet. Corp., Siegfus	4-22	22, 29-29	1162	Drilling
	Amerada Pet. Corp., S. P.	38-15	15, 29-29	3800	Completed
Beardsley	Shell Oil Co., KCL	1	24, 29-27	3273	Pumping
Canal	The Texas Co., KCL	77-32	32, 29-25	7855	Drilling
Canfield Ranch	Tide Water Assoc. Oil Co., KCL	68	15, 30-26	8132	Abandoned
	Tide Water Assoc. Oil Co., KCL	82-22	22, 30-26		Rigging up
Delano	O'Kane & Brain, Wheeler	1	20, 25-26	6701	Abandoned
Devils Den	C.C.M.O. Co., Bates	2	20, 25-19	5523	Standing cp'd
Edison	Lumpkin-Taylor & Assoc., Well	1	16, 30-29		Location
	Richfield Oil Corp., Cauley	2	16, 30-29	4798	Testing
Fruitvale	General Pet. Corp., Kernlandia	84-16	16, 29-27	8117	Bailing
Gould Hills	Hilo Oil Co., Hilo-Atlas	1	8, 29-21	3993	Drilling
Kern River	Wilkern Oil Co., Well	1	17, 28-29	1253	Pumping
McKittrick	Americal Pet. Corp., Americal	1	2, 30-31	5450	Idle
	MacDonald, Burns & Norris, Flickinger	2	36, 30-22	2904	Drilling
	Standard Oil Co., McPhee	2-1	36, 29-21	7665	Testing
Lindsey Hills	Standard Oil Co., Notz	1	18, 28-22	6536	Drilling
Lost Hills	Standard Oil Co., Cahn	58	4, 27-21	6268	Drilling
Magunden	Gene Reid Drlg. Co., Scott	1	34, 29-25	6717	Abandoned
Mojave	Thos. M. Blake, Cinco	1	22, 31-37		Rigging up
Mount Poso	Western Gulf Oil Co., Foster	1	17, 28-28	440	Drilling
Mt. View	J. I. Listle Canfield	1	12, 30-28		Rigging up
N. Edison	Standard Oil Co., Well	45-21	21, 29-29		Foundation
	Standard Oil Co., Well	81-21	21, 29-29		Rigging up
N. Poso Creek	Golden Bear Oil Co., Agey	3	28, 27-27	2062	Idle
Paloma	Western Gulf Oil Co., L. A. Club	67-6	6, 32-27		Rigging up
Poso Creek	Independent Expl. Co., Conoco	53	33, 27-27		Grade
Race Track Hill	Kern Oil Co., Ltd., Well	28-34	34, 29-29		Location
Round Mt.	Hilo Oil Co., Hilo-Bishop-Swan	1	15, 28-28	1435	Redrilling
	The Texas Co., KCL-Round Mt.	1-13	13, 28-28	2065	Drilling
Saco	Gen. Pet. Corp., Kernway	1-44	1, 29-26	4278	Drilling
Shark Tooth	United Oil Co., S. .P	1	35, 28-28	1463	Drilling
Sheep Springs	Rothschild-Bender Oil Ops., Anderson	2	20, 29-21	3039	Drilling
	Trico Oil & Gas Co., Trico	24-2	24, 29-21		Rig
Semitropic	Standard Oil Co., Fullerton	1	25, 27-23	14770	Testing
So. Belridge	Bandini Pet. Co., Bacon	1	27, 28-20	10495	Idle
Stockdale	Western Gulf Oil Co., KCL—Stockdale	1-A-5	5, 30-27	5992	Abandoned
Strand	Standard Oil Co., KCL	23-41	6, 30-26	9750	Drilling
	Standard Oil Co., Robbins	25-35	35, 29-26	6545	Drilling
Tejon	Continental Oil Co., Conoco KCL-K	1	36, 11-20		Rigging up
	Drilling & Prod. Co., O.M.B.	37-33	33, 11-19	4454	Testing
	Drilling & Prod. Co., O.M.B.	64-33	33, 11-19	1215	Drilling
	Hilo Oil Co., Hilo-Metzenbaum	34-5	34, 11-19		Rigging up
	E. W. Pauley, Well	33-9	33, 11-19	1061	Drilling
	Richfield Oil Corp., Tejon	A-16-35	35, 11-19		Rigging up
	Richfield Oil Corp., Tejon	R.H.-11-3	3, 10-19		Rigging up
	Richfield Oil Corp., Evans	1	36, 12-19		Rig
	Reserve Oil and Gas Co., Well	33-8	33, 11-19	2750	Completing
	Reserve Oil and Gas Co., Well	33-10	33, 11-19		Location
	Tejon Oil Co., Tejon	1A	19, 11-19		Rigging up
Ten Section	Richfield Oil Corp., Old River-KCL	2	3, 31-26	8651	Testing
Weed Patch	Gen. Pet. Corp., Kernsummer	8-27	27, 30-28		Location
Kings County					
Pyramid Hills	Pyramid Prod. Co., Spreckles	1	16, 24-18	4201	Cleaning out
Reef Ridge	Shell Oil Co., Crow	41-2	2, 23-16	3782	Drilling
Tulare Basin	Standard Oil Co., Mortgage Guarantee Comm.	1	25, 23-21	3558	Drilling
Madera County					
Madera	Lytle, Lowery R., Lytle	1	31, 12-16		Location
San Luis Obispo County					
Cholame	K & M Drilling Co., Kosanke	1	17, 25-16	661	Drilling
Midway	Richfield Oil Corp., Temblor Hills	1-1	36, 31-21	7244	Drilling
	Richfield Oil Corp., Temblor Hills	2-1	27, 32-22	4011	Drilling
Shandon	Tutin & Twisselmann, White	1	5, 26-15	2500	Drilling
Temblor Hills	Richfield Oil Corp., & Sun Oil Co., Gonyer Unit	1	36, 12-25		Grading roads
Tulare County					
Sunnyvale	Shell Oil Co., Parsons	36-1	1, 23-25		Cellar

Here's that Baker JUNK PUSHER you should use next time you run a BAKER Cement Retainer. You can find out why the Baker Junk Pusher is so important on Page 337 of the BAKER (or Composite) catalog.



This Book of

LATITUDE & DEPARTURE TABLES

Immensely Valuable to Petroleum Engineers

An accurate survey of a bore hole involves over 100 records. The calculations involve considerable time with possibility of errors.

Sperry-Sun Well Surveying Co. has compiled a set of Tables at great effort and expense which completely eliminates the making of calculations and immediately furnishes the desired results. So many requests have been received for their publication that Sperry-Sun has agreed to their release because of their usefulness to the oil industry. The book also contains a section dealing with the correction of Magnetic Compass Records.

PRICE $5.00

Address orders to:

California Oil World

Edison Well Recompleted

H. H. Magee, Operator, reperforated his Brockman No. 2, on sec. 13-30s-29e in the Edison field, in the interval 1210-30 & 1240-55 ft. to recomplete flowing a settled 890 B/D 21.5 gravity oil cutting 10.0% through a 60/64 in. bean.

On section 21-30s-29e Rothschild-Bender Oil Operations Heyden No. 4 is drilling ahead in shale at 2484 ft.

Greeley Well Now Finished

Standard Oil Co. KCL No. 11-44, on sec. 18-29s-26e in the Greeley field of Kern county, is completed after working steadily since April of 1944. Drilled to a total depth of 13,436 ft. the well experienced great difficulty in obtaining a water-shut-off which ultimately was accomplished at 11,529 ft. Gun perforated in the interval 11,400-530 ft. the well finished flowing a settled 454 B/D under control of a 22/64 in. bean. 348,000 cu. ft. of gas was obtained during the measured flow of 36.0 gravity oil.

The company's KCL No. 12-19, which has operated only one month less, is idle after failing to flow. Much work was required to obtain a shut-off at 11,375 ft. in this well. The company is drilling KCL No. 11-47 at 8956 ft., and is rigging up on No. 11-46, 12-20 and Nord Unit No. 3 while Wegis Unit No. 3 is making hole at 9309 ft.

Midway-Sunset Well Flowing

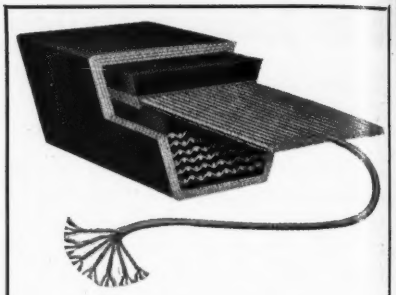
Thomas P. Pike, Opr., completed his well No. 5 on sec. 28-32s-24e in the Midway-Sunset field. Bottomed at 3429 ft. and with 59 ft. of perforations open to the zone the well flowed 55 bbls. daily clean 24.0 gravity oil through a 1 in. orifice.

Shell Starts Tulare Co. Try

Shell Oil Co. has dug cellar for Parsons No. 36-1 on sec. 1-23s-25e in the Sunnyvale area of Tulare county.

Mt. View Try Soon To Start

J. I. Listle will soon be under way with Canfield No. 1 in the Mountain View area of Kern county. The try is rigging up in the NW¼ of sec. 12-30s-28e.



QUICK FACTS about

GOODYEAR

STEEL CABLE V-BELTS

1—Power capacity exceeds any V-belt now on market.

2—Stretch practically zero. Once matched—always matched.

3—Stands higher tensions at lower speeds—replaces chain and gear drives.

4—Far greater ultimate life.

We will welcome an opportunity to work on your V-belt problems.

DISTRIBUTOR FOR

Goodyear Industrial Rubber Goods
Rust-Oleum Paint
Rubber Footwear & Clothing
Goodyear Griptred
Worthington QD Sheaves
Hose Couplings and Fittings

BARNES

DELANEY

ATLANTIC AND WILLOW • LONG BEACH
Long Beach Phone 4-1647
Los Angeles Phone NEvada 6-1785

SMITH - EMERY CO.
Since 1904
Oils Tested
Shipments Certified
Tanks Strapped
Offices and Laboratories
920 Santee St. Los Angeles
651 Howard St. San Francisco

Paloma Well Flows on Test

General Pet. Corp. Benco No. 58-28, sec. 28-31s-26e at the northerly flank of the Paloma field, flowed 636 B/D rate clean 35.5 gravity oil and 630,000 cu. ft. of gas on test of the gun perforated intervals 11245-11190 and 11160-11180 ft. A test of the 11200-11255 ft. interval flowed 624 B/D similar oil and 696,000 cu. ft. of gas.

Williams Well Makes Good Flow

Shell Oil Co., which recently resumed drilling in its discovery Williams field near South Belridge in Kern county, finished No. 505-6 at 2317 ft. pumping 207 B/21 hours net oil with a 1.5% cut. The well is producing from the 2B zone interval 2225-2315 ft. The company's No. 303-6 in the same section, 6-28s-20e, is drilling at 608 ft.

Stockdale Try Goes on Hook

Western Gulf Oil Co's. latest attempt to find production in the Stockdale area near Bakersfield failed when its KCL-Stockdale No. 1-A-5 abandoned at 5992 ft. The try, located on sec. 5-30s-27e, found the Base of the Macoma at 4708 ft. and reported no showings in any horizon.

Tejon Well Makes Flow

Reserve Oil & Gas Co. Well No. 33-8, sec. 33-11n-19w at Tejon, completed in Chanac Sands at 2750 ft. flowing 125 B/D 17.9 gravity oil through a 20/64 in. bean before water broke in. Killed with oil, the well is being tested to locate the point of entry. The company has staked location for No. 33-10 on a nearby site.

In the same section Drilling & Production Co. O.M.B. No. 37-33, sec. 33-11n-19w, bottomed in Reserve sand at 4454 ft. after entering the zone at 4410 ft. At last report the operator was testing shut off on a water string cemented at the top of the zone. This company is already under way at 1215 ft. in its No. 64-33 on an adjacent location.

Other activity in this area is: Richfield Oil Corp. rigging up on Tejon A-16-35 and R.H. 11-3 while rig is up for Evans No. 1; Tejon Oil Co. is rigging up No. 1-A on section 19-11n-19w; Continental Oil Co. is rigging up Conoco-KCL-K-1 on sec. 36-11n-20w while E. W. Pauley is drilling Well No. 33-9 below 1061 ft. on productive section 33.

Weedpatch Try Planned

General Pet. Corp. has scheduled Kernsummer No. 8-27 for the Weedpatch area of Kern county. The site is one location northwest of the center of sec. 27-30s-28e.

Mendota Area "Cat" To Drill

Seaboard Oil Co. is preparing to drill Seaboard-Superior No. 72-6 in the Mendota area of Fresno county. The projected driller will be put down in the northeast corner of sec 6-14s-16e.

Kraemer Area Project Fishing

Mid-Cal Pet. Co. Mid-Pet. No. K-1, on sec. 24-3s-9w in Orange county, is fishing drill pipe after coring to 2512 ft.

To the north of here on sec. 17-2s-9w in the Walnut area Everett H. Jones Well No. 1 is preparing to carry 8⅝ in. casing from present bottom at 560 ft. where the hole is caving.

Chatsworth Area Well Now Drilling

Shell Oil Co. Schonfeld No. 1, sec. 30-2n-16w in the Chatsworth area, is drilling ahead at 4697 ft. No showings have yet been reported in this well. Yet further west, on sec. 22-1n-17w in the Calabasas area, A. B. Simons, Agent for M. L. Gillespie, is drilling well No. 1 at 2260 ft.

STOP FUMBLING! Don't lose your patience looking for locations, spud dates, etc., on California Drilling Wells. CALIFORNIA OIL WORLD NEWS SERVICE, a complete weekly report, carries a continuous story on every well in EACH issue. Write for a sample copy NOW!

R. O. Perry

Account Executive Appointed by Ostrander

The Russell P. Ostrander Advertising Agency of Los Angeles has announced the appointment of R. O. Perry as Senior Account Executive.

Perry was formerly Advertising Manager of Emsco Derrick & Equipment Company and has had many years of experience in the industrial advertising field. Due to his wide knowledge of oil field machinery and operating practices he will supervise many of the agency's rapidly increasing oil field equipment accounts, and will be particularly active in the development of new industrial accounts.

When you need a complete summarized scout report investigate CALIFORNIA OIL WORLD NEWS SERVICE. Presented in new printed form, this modernized report carries a continuous story on every drilling well in California. Locations, spud dates, tests, etc., are carried in EACH week's report.

BUY WAR BONDS

JOHNSTON'S STAINLESS STEEL
WELDING RODS

Still
Meet Specifications

•

A. P. JOHNSTON
1845 E. 57th St. - Los Angeles 11, Calif.

A.A.P.G. Will Conduct Study Group

The Pacific Section of the American Association of Petroleum Geologists, under the presidency of Glenn H. Bowes, will conduct a study group on the subject of stratigraphy, beginning Wednesday, January 31 at 7 o'clock, and meeting about every two weeks, on the twelfth floor of the Subway Terminal Bldg. Martin Van Couvering is chairman of the group.

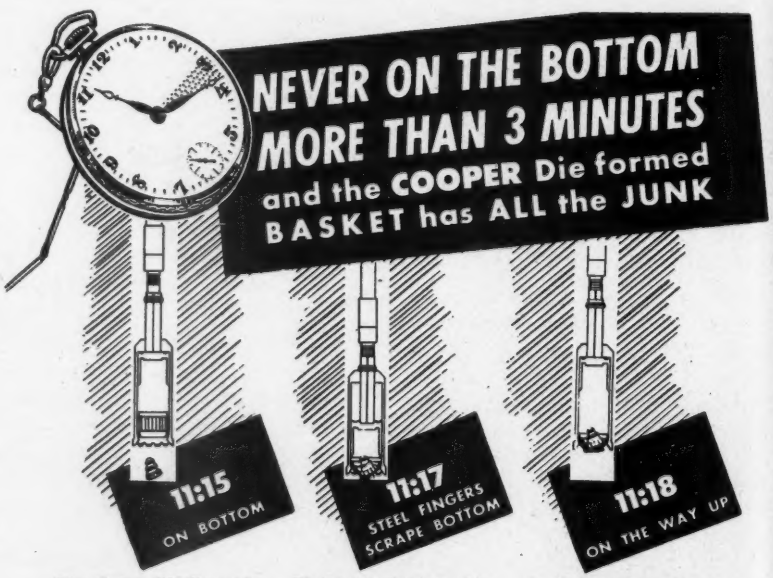
The meeting of January 30 will be a round-table discussion of the stratigraphy of the Newhall district, led by a number of geologists familiar with the area, including John Hazzard, R. D. Sherman, Wayne Loel, Thomas Clements, J. E. Eaton, and L. A. Tarbet. Petroleum engineers of the State Division of Oil and Gas, F. C. Hodges and E. R. Murray-Aaron, who have written about the area, will also participate. Donuil Hillis, L. W. Chasteen and Byron Webb are working on a bibliography of the literature written about the area.

The meeting of Tuesday, February 13, will feature a review, by Richard TenEyck, of the literature on California and general stratigraphy, published during the year 1944, and a talk, by Robert T. White, clarifying the distinction between time-stratigraphic units and cartographic units, and the misapplication of names of the latter to the former.

On Tuesday, February 27, Dr. Chester Stock, of California Institute of Technology, and of Los Angeles Museum, will give a talk on the application of European stratigraphic terms to units in California. Dr. Stock's talk was originally planned for January 15, but had to be postponed, for reasons beyond his control.

On the same program, Glen B. Gariepy will discuss the measurement of geologic time, the estimates that have been made of the length of various units, and the principal subdivisions that have been proposed by leaders of geologic thought.

BUY WAR BONDS



The Cooper Die-Formed Basket, attached to the drill pipe by your own crew, is on the bottom, ready to work. No need to circulate, rotate or to make hole.

Weight applied to the drill string cuts the shear pins which support the ram, driving the steel fingers through the die and bending them into a tight basket.

As the fingers curve out and interlock, they scrape the bottom of the hole, picking up and retaining *all* the junk, big and little. A clean hole in 3 minutes!

For Service Call BAASH-ROSS TOOL COMPANY
LONG BEACH AVENAL BAKERSFIELD LOS ANGELES

Mfrd. by ACME PATENT DEVELOPMENT CORP., 2680 Atlantic Ave., Long Beach, Calif.
Distributors, LIBERTY OIL TOOL CO., P.O. Box 1548, Long Beach 1, Calif.
Export Representative, LUCEY EXPORT CORP., New York, N. Y.